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REGIONAL ECONOMIC PLAN

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THE OLD WEST REGIONAL COMMISSION
March 1976

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REGIONAL ECONOMIC PLAN

FOR THE

OLD WEST REGIONAL COMMISSION

MARCH, 1976



The Old West Region Commission is a Federal-State partnership designed to solve regional economic problems and stimulate orderly economic growth in the states of Montana, Nebraska, North Dakota, South Dakota and Wyoming. Established in 1972 under the Public Works and Economic Development Act of 1965, it is one of seven identical Commissions throughout the country engaged in formulating and carrying out coordinated action plans for regional economic development.

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FOREWORD

This revised draft report concludes many months of activity. While formal work on the plan began in the spring of 1975, and a draft of this report was submitted in October 1975, planning activities in the Old West States have been supported by State public investment planning grants since early 1973. Planning on a regional basis began early in 1974 upon acquisition of a Commission staff following a year of budgetary uncertainty. The report is, therefore, a milestone in the course of ongoing activities and will serve to stimulate a living process in the years to come.

The document is organized into four parts containing thirteen chapters. In addition, there is an Executive Summary which includes a brief review of major Commission recommendations. Each chapter except the first begins with a summary of pertinent results, conclusions, or recommendations. A longer summary of the plan has been produced as a separate document.

Part I of this document is an introduction, and includes a chapter explaining general study background, purpose and approach. Part II provides a review of existing and historical regional conditions, resources and structure. This part contains eight chapters describing economic and other characteristics of the population, the natural resource base, environmental quality, public revenue and expenditure patterns and facilities location, industrial structure, regional potentials and problems, and other conditions. Part III, containing three chapters, presents projections through 1985 of regional economic, population and environmental conditions. Finally, Part IV presents the Commission's regional plan. This includes a chapter specifying proposed objectives and goals, and a strategy for achieving these ends.

Special recognition for their assistance in preparation of this report is accorded to the Commission Alternates of the five Old West States, the Commission staff, the Investment Planning staffs of the five States, and the staff of Centaur Management Consultants under the direction of Project Manager Paul W. Kolp. Further acknowledgements can be found at the end of this report.

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EXECUTIVE SUMMARY

STUDY PURPOSE

This document represents the Old West Regional Commission's long-range economic plan. The document is intended to meet the legislative requirement of having an economic plan approved by the Secretary of Commerce and to provide a framework for allocating Commission resources and for positively influencing public spending generally in the Region.

STUDY APPROACH

A historical review was performed of economic, social and environmental conditions in the Region. Many of these characteristics were projected to 1985. In addition, a separate analysis was made of specific regional socio-economic potentials and problems. From this, a series of regional goals were formulated along with an estimate of public costs and a strategy for goal achievement.

This research and planning effort drew heavily upon existing data bases and studies. Also, an analytical framework was developed for integrating historical and other data in preparing regional projections. This framework included 1) a cohort-survival population model, 2) a simple econometric model for projecting employment, earnings, personal income, population and net-migration, and 3) development of pollutant coefficients and other procedures for projecting environmental conditions.

In reviewing historical data and performing necessary projections, three different geographical groupings were considered:

- 1) the whole Region,
- 2) each State in the Region, and
- 3) various sub-State areas (numbering 18 in total) which cover the entire area of the Region.

Sub-State areas were delineated to begin assessing particular needs, potentials, problems and resource requirements below the State level.

OBJECTIVES AND GOALS

The overall objective of the Old West Regional Commission is to improve the general quality of human existence in the Region. This objective has several dimensions, including economic, environmental, social and other aspects. The specific goals of the Old West Regional Commission are:

1. To increase per capita personal incomes in the 18 sub-State areas of the Region to about \$4,800 (in 1967 dollars) for the non-Indian population in 1985. This translates into a personal income increase of \$280 per capita in five projected deficit sub-State areas. This goal would result in the achievement of an average 1985 per capita personal income level in all sub-State areas of the Region that is nearly 90 percent of the expected national average. Parity with the national per capita personal income level is not sought. For the Region, other existing quality of life factors are important, as long as per capita income levels are reasonable in comparison with the nation. In addition, this goal is not intended to preclude the inclusion of other low income localities (e.g., a county or multi-county area) throughout the Region from participating in future program activities. Further analysis and study of local conditions will isolate other economic problems to be resolved. Also, the intent is to provide improved income producing opportunities throughout the Region, not only in low income areas, and then to link low paid or unemployed workers to these opportunities.
2. To increase per capita personal income among American Indian peoples in the Region by about \$350 (in 1967 dollars) above the expected 1985 level. Economic problems are especially severe in Indian areas. A direct approach is required to solve such difficulties and at the same time to strengthen the economic self-sufficiency of tribal groups. A \$350 (1967 dollars) increase in per capita income of Indian peoples by 1985 would begin to close the income gap among the Region's Indian population. The longer term goal of the Old West Regional Commission is for Indian people to achieve parity with per capita personal income levels in the Region.
3. To prevent serious potential dislocations or disruptions from occurring in the regional economy as a result of rapid energy-related developments. The intent is to foresee, plan, and assure that economic and social disparities are minimized and that needed community, water conveyance, and other major public facilities are provided in order to preserve the quality of life of local communities.

4. To achieve the environmental quality implied in the Federal and State regulations for air and water pollution, and to maintain high quality areas. By law, certain air and water pollution conditions in the Region are to be controlled by 1985, resulting in expected improvements to the environment. Regionwide enforcement of standards is essential to an improved environment. Continuous review of existing standards, especially in high quality areas, is also necessary to assess their adequacy. Equally important is the study and review of pollution problems where no standards exist. For example, the preparation, application and enforcement of standards and "best management practices" to land-related non-point sources (not currently covered by pollution control regulations) are needed because of their overwhelming contribution to regional pollution. Satisfactory land reclamation of strip-mined land is also essential to prevent degradation of the physical environment. Finally, it is important to continually strive for more and better data with which to analyze the environmental conditions and refine pollution measures.
5. To improve health services, especially in the more rural parts of the Region. Data analyses have shown the lack of physicians in the Region and the low level of public funding for health facilities and hospitals. Sparse population distributions and low income levels have been responsible for such conditions. Programs are needed to improve health delivery services in the Region.
6. To provide for increased citizen participation in the governmental decision-making process and to provide a forum for discussing regional issues. Regional planning will benefit from greater citizen participation in the goal-setting process and in the selecting of programs and projects to fulfill these goals. In addition, by providing a forum for discussing economic, environmental, social or other issues, a process will have been initiated for seeking regional responses to issues and regional solutions to particular problems.

IMPLEMENTATION STRATEGY

To achieve these goals, estimates of public and private investment and other costs have been determined and a program implementation strategy was designed to take advantage of existing regional potentials and to resolve existing and future potential problems. To achieve Old West Region goals, a public expenditure program of approximately \$1.04 billion (in 1975 dollars) is proposed for the 1975-1985 period, or about \$104 million per year. These monies would be above and beyond current expected public expenditures for the Region. Of these public funds, about 80 percent would be provided by Federal sources and 20 percent from State and local sources; however, 100 percent Federal funding is proposed for Indian areas and for the technical, planning and demonstration assistance program. On the Federal side, it is proposed that special legislation be considered to furnish these additional monies to specific agencies with program implementation responsibilities. Monies would be earmarked for use only in the Old West Region, and would be provided to specific programs or projects through existing categorical grant-in-aid, revenue sharing, block-grant or other mechanisms, whichever is appropriate to the utilization of Federal agency funds for a particular activity. Where no Federal mechanism or program exists to fund a particular activity, the Old West Regional Commission would be the source of Federal monies. The Commission would also be a source of supplemental grant-in-aid financing of up to 80 percent of project cost.

Estimates of proposed public funding levels to achieve various regional goals are as follows: \$800 million would be for investment purposes, including \$510 million to support personal income growth and \$290 million to prevent disruptions from expected energy-related developments; \$130 million would be for employment services related to personal income growth goals; and \$110 million would be for technical, planning and demonstration assistance. The latter would be to improve environmental conditions, rural health services, and the regional planning process (especially by bringing the public into the governmental decision-making process). These activities are summarized in the following listing along with very preliminary estimates of funding by program activity. Further details are provided in Chapter XIII, including descriptions of proposed programs, possible funding and coordinating agencies, and general strategies for project location priorities.

<u>Proposed Public Assistance Activity</u>	<u>Preliminary 1975-1985 Funding Level</u> <u>(in millions of 1975 dollars)</u>	
For Per Capita Income Growth		
Investment Assistance		
Agricultural Facilities	\$ 75	
Industrial/Manufacturing		
Facilities	100	
Tourism/Recreation Facilities	25	
Business Loan Program	100	
Educational Facilities	100	
Transportation Facilities	50	
Other Facilities	60	
	Subtotal	\$510
Employment Services Assistance		
Manpower Training	\$100	
Other Employment Services	30	
	Subtotal	\$130
Related to Energy Development		
Investment Assistance	\$290	
Community Facilities		
	Subtotal	\$290
Technical, Planning and		
Demonstration Assistance		
Environmental Activities	\$ 30	
Health Service Activities	50	
Other Activities	30	
	Subtotal	\$110
	Total	\$1,040

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PART I

INTRODUCTION

CHAPTER I

BACKGROUND

1.1 Regional Planning Concept

Regional planning can provide a means for assuring that economic and other types of opportunities are equitably provided in sub-national areas. Such planning can also yield a process for stating sub-national goals and aspirations and for suggesting potential procedures to achieve the most essential goals. When adequately performed, regional planning recognizes the disparities in resources and other locational factors existing between and within regions. While recognizing the existence of specific constraints to socio-economic change, planning can help overcome certain types of inefficiencies or bottlenecks to change, can foresee expected problems or disruptions, or can help provide non-existent opportunities for change to particular disadvantaged persons or groups within the region. Questions concerning resource allocations between and within regions, or on the achievement of sub-national versus national goals, can be addressed in the planning process by attempting to evaluate cost and other resource requirements to accomplish particular economic, social, environmental or other goals. The analysis of benefits and trade-offs among differing socio-economic ends in relation to resource requirements is one of several essential aspects of the planning process.

1.2 Regional Commission Program

Multi-state regional planning was given a major impetus with the establishment of the Regional Commission program within the U.S. Department of Commerce. This program was established under Title V of the Public Works and Economic Development Act of 1965 (as amended). This Federal legislation (P.L. 80-136) declared that:

some of our regions, counties and communities are suffering substantial and persistent unemployment and underemployment;... that to overcome this problem the Federal Government, in cooperation with the States, should help areas and regions of substantial and persistent unemployment and underemployment to take effective steps in planning and financing their public works and economic development; that Federal financial assistance...should enable such areas to help themselves achieve lasting improvement and enhance the domestic prosperity by the establishment of stable and diversified local economies and improved local conditions, provided that such assistance is preceded by and consistent with sound, long-range economic planning..."

The intents of the Act are clear regarding the needs of planning to achieve economic gains, and the functions of the Regional Commission program were devised to achieve regional economic development using as a guide or framework the results of careful, thorough investigations and related economic planning. In fact, one of the requirements of the Act

was to initiate and coordinate the preparation of long-range overall economic development programs for multi-state regions, including the development of a comprehensive long-range economic plan approved by the Secretary of Commerce.

As a result of this Act five Regional Commissions, originally covering all or parts of 20 States, were created during 1966 and 1967. In 1972, two additional Commissions, covering 8 entire States and including the Old West Regional Commission, were designated.

The Regional Commission program has, to date, been provided Federal funds primarily for technical and planning assistance and for supplements to projects receiving Federal grant-in-aid program financing. However, to obtain supplemental funds a Commission must have met the legislative requirement of having an approved (by the Secretary of Commerce) comprehensive long-range economic plan.

1.3 Purpose and Setting

This document constitutes the Old West Regional Commission's long-range economic plan. In preparing this document U.S. Department of Commerce planning guidelines were utilized.¹ These in aggregate provide detailed, but still general guidelines for development of a regional plan. This reflects in part the understanding by the Department of Commerce that variations in the planning process will exist among the regions due to differences in problems, potentials and other characteristics. Also, over time other factors or conditions are likely to be responsible for changes in the planning process. For example, during the past decade there has occurred a change in Regional Commission emphasis on solely economic development matters to greater concern for the relationships between economic, environmental, land use, social and other conditions or factors.

The Old West Regional Commission, in this document, has endeavored to answer the major questions posed by the planning requirements, indicating 1) the levels and trends of socio-economic conditions in the Region historically (at least over the most recent several decades), 2) the current status of the regional economy, 3) likely future characteristics of the regional economy, 4) desirable and undesirable aspects of this future, with particular emphasis on what needs changing,

¹ For example, see 13 C.F.R. 307 "Regional Action Planning Commissions," especially Subpart D, paragraphs 307.50 through 307.52; Secretary of Commerce Memorandum, "Minimum Acceptable Planning Requirements as the Basis for Issuing Supplemental Grants to the Regional Commission," prepared for the Director of the Bureau of the Budget, January 10, 1968; and Office of Regional Economic Coordination, "Guidelines for Planning and Program Formulation for Regional Action Planning Commissions," February, 1972.

and 5) how the Region would proceed in attempting to attain more desirable goals (or benefits) and the costs associated with these actions.

In addition, the Old West Regional Commission views the planning process as a "living" or a continuing process. The essential element is to produce a convincing regional economic plan. One that can not only meet the legislative requirement of obtaining Department of Commerce approval, but one that also provides an understanding of the Region, of directions and possibilities, and provides a framework for allocating Commission resources and for beginning to positively influence Federal and non-Federal spending in the Region. As better data and the results of other studies and investigations become available, and as certain national and regional issues are clarified and actions result (especially in the energy field), it is expected that the Commission's plan and the planning document will be continuously reviewed and updated. Further, regional planning can be viewed as a process proceeding simultaneously on three levels: 1) the macro-economic or overall regional level, 2) the sector (agriculture, mining, manufacturing, etc.) level, and 3) the micro-economic or project level resulting largely from local initiatives and an understanding of local conditions. Each level of planning is inter-related with the other, and both "top-down" and "bottom-up" planning activities merge in producing the regional plan. The present plan concentrates most heavily on providing the overall regional framework and related sector analyses as a basis for recommending the general types of project investment priorities and their general locations for achieving plan goals. Later, investigations and other activities at the local level will provide more definitive recommendations on specific project investment requirements, and these results will be used in updating and improving the planning process and the planning document.

1.4 General Approach

In order to answer the major planning questions posed to the Old West Regional Commission, 1) a historical review was performed of economic, social and environmental conditions in the Region, 2) a separate analysis was performed of specific socio-economic potentials and problems existing in the Region, and 3) projections (to 1985) were prepared of major economic, social and environmental conditions. From this a series of regional goals were formulated along with an estimate of public costs and a strategy for achieving these goals.

The approach utilized in this regional planning effort was to draw upon existing data bases and studies. This approach was partly dictated by the need to rapidly move ahead in forging a regional plan. Basic data sources included: 1) Bureau of Economic Analysis historical earnings data and projections by industrial sector; 2) State Department of Employment Security data on historical employment by industrial sector;

3) historical U.S. Census data on population, income, occupations, education, public expenditures and revenues, and other factors; 4) Federal Environmental Protection Agency (EPA), Council of Environmental Quality (CEQ) and State data on historical and projected environmental quality and pollution control;¹ 5) Northern Great Plains Resource Program, State, other Federal agency, and private industry data on historical and projected energy-related activities in the Region; and 6) discussions with, and written reports from, public and private officials to determine other major potential future regional developments. In addition, a series of questionnaires were mailed to State officials and private employers (with 100 or more employees) in the Region to help assess economic potentials and problems in the Region and expected private investment levels over the next 5 to 10 years.

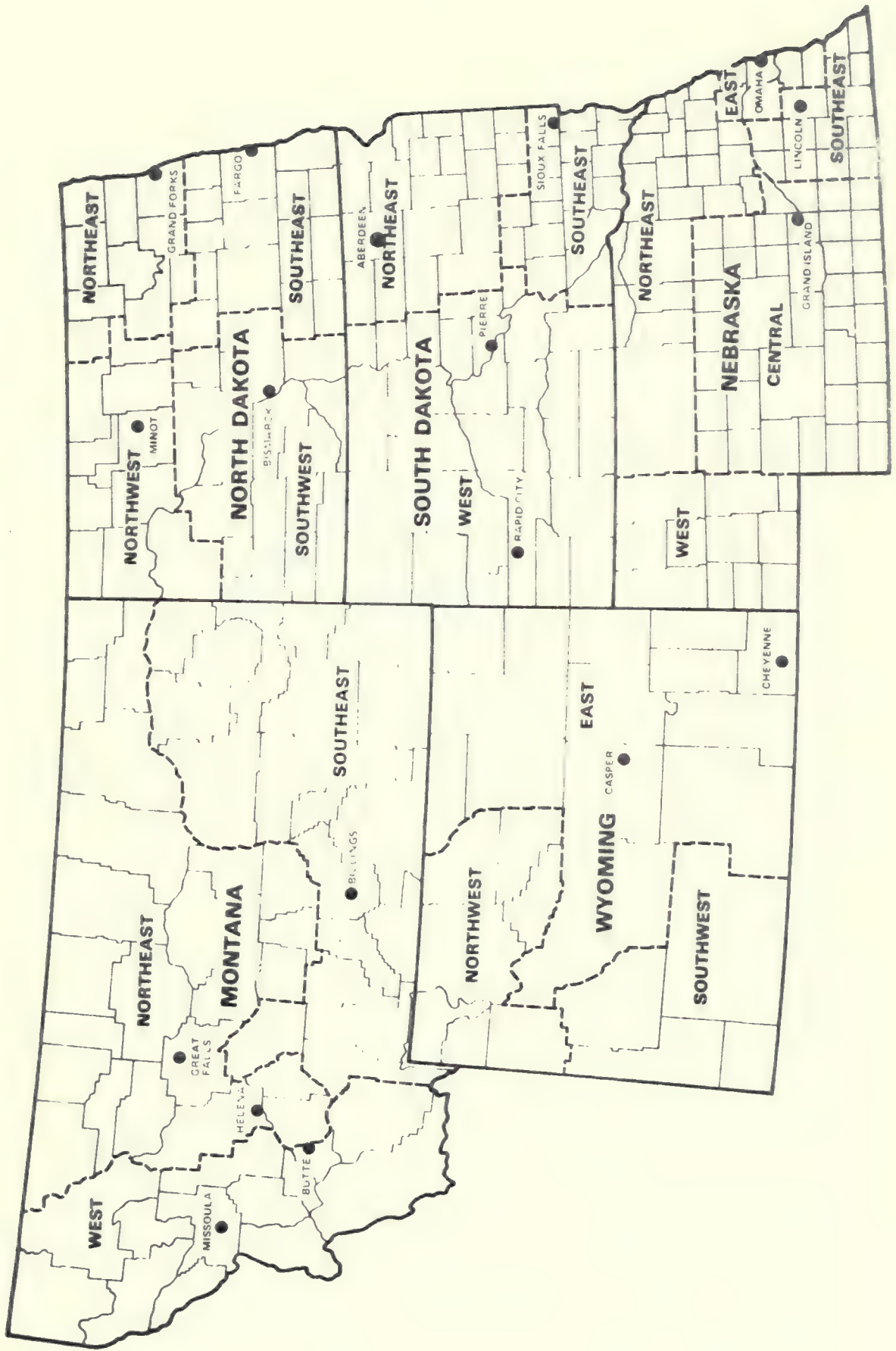
From this, an analytical framework was developed for integrating a substantial portion of the historical data base and other data in order to make regional projections to 1985. This framework included 1) a cohort-survival population model which was used to project 1985 natural population change by county, 2) a simple econometric model for projecting regional and sub-regional employment, earnings and personal income, population, and net-migration through 1985, and 3) development of a series of pollutant coefficients and other environmental data for projecting environmental conditions in the Region through 1985. Many of the assumptions about the future could be made obsolete as a result of changes in technological, political or other conditions. As is the case with most projections, these simply indicate what is expected to occur given present trends and knowledge.

In reviewing much of the historical data base and making many of the necessary projections, the analysis focuses on three separate geographical areas: 1) the Region, 2) each State in the Region, and 3) 18 sub-State areas. These 18 sub-State areas were delineated in order to begin assessing the particular needs, problems, potentials and resource requirements at the sub-State level. These areas constitute an aggregation of counties within individual States (i.e., they do not cross State boundaries), and each area generally includes several State planning districts.² These areas were chosen by the Commission in conference with each State, and Figure I-1 shows the location and names of these various areas (see Appendix A for a list of counties contained in these sub-State analysis areas).

¹ An extensive effort was made to take advantage of EPA's Strategic Environmental Assessment Systems (SEAS) model. However, it was not possible within the time limits of this contract to utilize the results of this work at the sub-national level.

² Except in Wyoming, all of the other areas include whole aggregations of more than one State planning district. Wyoming has not divided the State into planning districts. Most of the 18 sub-State areas delineated have at least one central urban place.

**FIGURE I-1
STATE AND SUB-STATE AREAS—OLD WEST REGION**



PART II
REGIONAL CONDITIONS,
RESOURCES, AND STRUCTURE

CHAPTER II

GENERAL POPULATION CHARACTERISTICS

2.1 Summary

This chapter reviews the general population characteristics of the Old West Region. This review indicates that for a number of decades the Region has had little population growth. This was possible because of the relatively large numbers of persons migrating out of the Region. During the last several years, however, this long-term trend has reversed itself, resulting in net in-migration. The inhabitants have over the years displayed high physical mobility, apparently a willingness to travel toward existing job opportunities.

In addition, the Region is very sparsely populated and is generally rural in character with long distances between urban settlements. The Region lacks a central urban-industrial focus to integrate economic activity and to provide a center of self-sustaining economic growth. Instead, large metropolitan areas ring the Region, with only a few smaller metropolitan areas being located in the Region and these generally near or astride the Region's outer boundary. The population and associated economic forces look outward from the Region instead of being focused or linked inward. This is consistent with the rural character and the predominating natural resource base of the Region.

The Region also contains relatively few racial minorities among its inhabitants, with American Indians being the largest single racial minority.

More specifically, the review of historical population data show the following results:

1. Between 1920 and 1970 the population of the Region increased from 3.3 million to 3.8 million, or a rate of increase of only 0.3 percent per year. Between 1950 and 1960, and 1960 and 1970, the compounded annual population growth rate was 0.7 percent and 0.2 percent, respectively, for the Region and 1.7 percent and 1.3 percent, respectively, for the nation. In 1970, the Old West Region contained about 1.9 percent of the nation's inhabitants.
2. Between 1970 and 1974, the Region's population growth rate increased to 1.1 percent annually while the nation's rate of growth declined to 1.0 percent per year. By 1974 the Region's population was almost 4.0 million persons.
3. The Region's area covers almost 465 thousand square miles, or 13.1 percent of the nation's area. The average 1970 population density was 8.2 persons per square mile in the Region versus 57.5 in the nation.

4. In 1970, 46 percent of the Region's population was located in rural areas as against 26 percent in the nation; also, only 39 percent of the Region's population lived in urban areas with 10 thousand or more persons, whereas 55 percent of the nation's population lived in such areas. Among the States, Nebraska was the most urbanized. In addition, in 1970 there were only 7 SMSAs in the Region. Only two SMSAs (Omaha and Lincoln) contained more than 100,000 persons, and 26 percent of the Region's population lived in SMSAs compared to 69 percent in the nation. Between 1960 and 1970, the rural-urban population mix showed substantial stability in the Region, although the greatest population growth occurred in urban areas of 5-10 thousand persons.
5. Only 3.8 percent of the Region's 1970 population, compared to 12.5 percent in the nation, was non-white. American Indians are the dominant minority, numbering about 86 thousand in 1970 and accounting for 2 percent of the Region's population.
6. In 1970, of the Region's population, 39.3 percent were age 0-19 (versus 37.9 percent for the nation), 49.3 percent were age 20-64 (versus 52.3 percent for the nation), and 11.3 percent were 65 years old or more (versus 9.9 percent in the nation). There have also tended to be more males than females in the Region (3 percent higher in 1970) as compared with the nation.
7. In 1960 the general fertility rate for the Region was 15 percent above the nation's, but by 1970 the Region's rate was only 2 percent above the national rate. While the national fertility rate declined appreciably during the 1960's, the decline was much more dramatic in the Region. Regional and national death rates appear to be very similar.
8. Between 1960 and 1970 there was a net out-migration from the Region of an estimated 383 thousand persons, or more than 10 percent of the existing 1960 or 1970 population. Net out-migration was especially large among those age 20-29 in the Region, amounting to 28 percent of those in this age bracket in 1960. The highest out-migration rates during the 1960's occurred in Northeast Montana; West Nebraska; Northwest, Southeast and Southwest North Dakota; and Northwest Wyoming.
9. Net migration data mask the actual movements into or out of an area. For example, between 1965 and 1970, net out-migration from the Region was estimated at 194 thousand

persons. But during this more 5-year period, 504 thousand persons left and 310 thousand persons moved into the Region. Another 62 thousand persons moved between the five States in the Region, or just under a million persons moved into or out of these five States. Overall about 16 percent of the population out-migrated from these five States, compared to about 9 percent out-migrating from all states in the nation. While the age-sex characteristics of regional in-migrants and out-migrants were similar, movements were especially high in the 20-29 year old age bracket. In all States of the Region more than 30 percent (in several States more than 40 percent) of those in this age bracket in 1965 moved out by 1970, and in all States more than 20 percent of the 1965 population moved in by 1970.

10. A net in-migration occurred in the Region between 1970 and 1974, amounting to an estimated 52 thousand persons. Net in-migrations occurred in Montana, Nebraska and Wyoming and little net movement occurred in North Dakota and South Dakota.

2.2 Population Trends

In recent decades the population size of the Old West Region has remained relatively unchanged. This represents a long-term trend. In 1970, the population of the Region was about 3.8 million (or 1.9 percent of the national total) compared to approximately 3.5 million persons in 1950 (see Table II-I). The Region's population level grew by 7.2 percent between 1950 and 1960 (or 0.7 percent per year) and 1.7 percent between 1960 and 1970 (or 0.2 percent per year) compared with national population increases of 18.5 percent during the 1950's (or 1.7 percent per year) and 13.3 percent over the 1960's (or 1.3 percent per year).¹ During this twenty year period, but especially between 1960 and 1970, the Region's population grew at a much slower rate when compared with the nation.

While the population estimates for "non-Census" years are not as rigorously determined (i.e., in relation to the national decennial census), the data shown in Table II-I suggest a substantial change in the Region's population growth during the early 1970's.² Whereas, the nation's population growth rate has continued to decline to an estimated 1.0 percent annually, the Region's population growth rate increased to 1.1 percent annually, or above the national rate, between 1970 and 1974. By 1974 the Region's population was estimated at just under 4.0 million persons.

¹ Between 1920 and 1970 the Region's population grew by less than 0.5 million, from just over 3.3 million in 1920 to just under 3.8 million in 1970, or in total only by about 14 percent (0.3 percent per year).

² This apparent reversal of migration is consistent with recent employment changes in the Region as shown in Chapter VIII.

POPULATION AND POPULATION GROWTH RATES
BY REGION AND STATE
1950-1960, 1960-1970, and 1970-1974

Region	Population			Annual Rate of Change, in percent			Percentage Change		
	1950	1960	1970	1950-1960	1960-1970	1970-1974	1950-1960	1960-1970	1970-1974
Montana	549,439	572,123	579,548	22,684	7,425	1.1	7.2	1.7	4.3
North	521,221	574,767	624,429	53,546	49,662	1.4	14.2	2.9	5.8
Northeast	512,354	551,323	249,346	38,969	-22,027	1.5	12.1	-3.1	4.1
Southeast	529,971	509,902	216,141	-20,069	-22,761	1.5	16.6	2.5	6.3
West	198,399	213,342	234,922	14,943	21,580	1.8	7.4	10.3	7.2
Nebraska	1,325,511	1,411,330	1,493,432 ²	85,819	82,102	1.0	6.5	5.1	4.0
Central	325,363	311,635	314,022	-13,728	2,387	0.4	-4.4	0.8	1.5
East	384,329	470,939	551,913	86,610	80,974	1.9	22.4	17.2	7.8
Northeast	228,566	220,062	214,232	-8,504	-5,830	-0.1	-4.0	-2.7	0.1
Southeast	284,461	304,061	304,335	19,600	3,274	1.0	7.0	1.4	4.1
West	101,955	104,363	94,245	2,408	-10,118	-0.4	2.4	-10.1	-1.5
North Dakota	519,536	532,446	637,490	12,910	105,044	0.8	2.1	-2.3	3.2
Northeast	424,124	430,797	493,531	6,673	62,734	1.5	0.5	1.9	6.5
Northwest	33,506	132,454	130,352	98,948	-2,102	0.2	11.3	-1.6	0.7
Southeast	206,390	226,407	277,066	20,017	50,659	0.3	4.0	4.7	1.9
Southwest	154,566	152,788	146,556	-1,778	-6,232	1.0	-1.1	-4.1	3.9
South Dakota	552,110	562,514	665,517	10,404	103,003	0.3	1.2	-2.3	2.5
Northeast	217,611	226,469	249,932	8,858	23,463	0.3	-3.6	1.1	0.5
Southeast	236,349	242,564	244,349	6,215	1,785	0.1	2.8	0.6	0.5
West	158,150	193,481	171,236	35,331	-22,245	1.5	18.1	-1.4	6.5
Wyoming	292,529	330,066	332,415	37,537	2,349	2.0	13.6	0.7	8.4
East	206,171	244,364	249,232	38,193	4,868	1.7	18.7	2.0	6.3
Northwest	43,406	47,602	45,294	4,196	-2,308	1.8	8.7	-5.1	5.5
Southwest	40,452	38,100	37,886	-2,352	-214	4.1	-6.9	-0.8	23.3
United States	151,225,798	179,323,175	211,395,000	28,097,377	32,071,826	1.1	18.5	13.3	4.0

1 Census provisional estimates as of July 1.

2 A correction note was added to the 1970 count for Nebraska. The correction for the State amounted to an addition of 288 persons. However, for sub-State areas the difference was greater. For example, the correction for East Nebraska was an addition of 2-3 thousand persons. Nevertheless, the overall error was proportionately very small and no information was available on age, sex, etc., of this population. Consequently, the uncorrected population number was used here and provides a control on other tables in this chapter presenting information on population age, sex, distribution, etc.

Source: 1) U.S. Bureau of the Census, Census of Population: 1960 and 1970, Vol. I, Characteristics of the Population, Part 1, Part 28, Part 29, Part 36, Part 43, and Part 52, U.S. Government Printing Office, Washington, D.C.

2) U.S. Bureau of the Census, Census of Population: 1950, Vol. II, Characteristics of the Population, Part 1, Part 26, Part 27, Part 34, Part 44, and Part 50, U.S. Government Printing Office, Washington, D.C., 1952.

3) U.S. Bureau of the Census, Current Population Reports: 1975, P-25, Federal-State Cooperative Program for Population Estimates, Nos. 100, 101, 102, 104, 109, U.S. Government Printing Office, Washington, D.C., 1975.

4) U.S. Bureau of the Census, Current Population Reports, 1974, P-25, Population Estimates and Projections, No. 523, U.S. Government Printing Office, Washington, D.C. 1974.

These population changes have obviously not been uniformly distributed throughout the Region. For different time periods the data reflect a wide range of varying population changes among the State and sub-State areas. For example, Nebraska the most populous State in the Region, with a current population of about 1.5 million, had a relatively stable population growth rate between 1950 and 1974; although, Nebraska's sub-State areas have undergone drastic variations in population level--East (or Omaha) increasing by 22.4 percent during the 1950's and 17.2 percent during the 1960's, and West increasing by 2.4 percent over the 1950's and then decreasing by 10.1 percent through the 1960's. In addition, Montana and Wyoming have also had population increases during all periods shown in Table II-I. However, in Montana the fastest growing sub-State areas in the 1950's were Northeast and Southeast, whereas in the 1960's it was the West that grew most rapidly (the Northeast actually declined in population) and in the early 1970's all areas appear to be growing in population at a relatively similar rate; and in Wyoming the fastest growing area in the 1950's and 1960's was the East (the other areas declined in population during some periods), but in the 1970's the greatest increases apparently have occurred in the Southwest. North Dakota and South Dakota had population increases during the 1950's, declines during the 1960's, and increases again (at higher rates than in the 1950's) in the early 1970's. In general, Northeast and Northwest North Dakota and Southeast and West South Dakota have displayed population increases during all periods since 1950.

2.3 Population Distribution

Figure II-1 underscores the sparseness of population in the Region as compared with the nation. Only parts of Nevada, Utah, and Arizona contain the low population densities found in the Region. Figure II-2, a national representation of population density by county, nearly as dramatically shows the sparse distribution of people within the Region.

Table II-2 indicates that in 1970 the average population density of the Region was about 8.2 persons per square mile compared to 57.5 persons per square mile for the nation. Among States in the Region, Nebraska had the highest average population density with 19.4 persons per square mile, and the lowest average population density was in Wyoming with 3.4 person per square mile.

The land area is large (13.1 percent of the nation's land area is included in the Region) and there are not numerous or large concentrations of persons. The Region is generally rural in character, and the population concentrations that do exist tend to be located at the very edge or fringe (e.g., Lincoln, Omaha, Fargo-Moorehead, Sioux Falls) of the Region with no centralized metropolitan or urban setting for focusing, linking and generating economic activity unique to the Region or beyond.

Figure II-1
POPULATION DISTRIBUTION: 1970

OLD WEST REGION

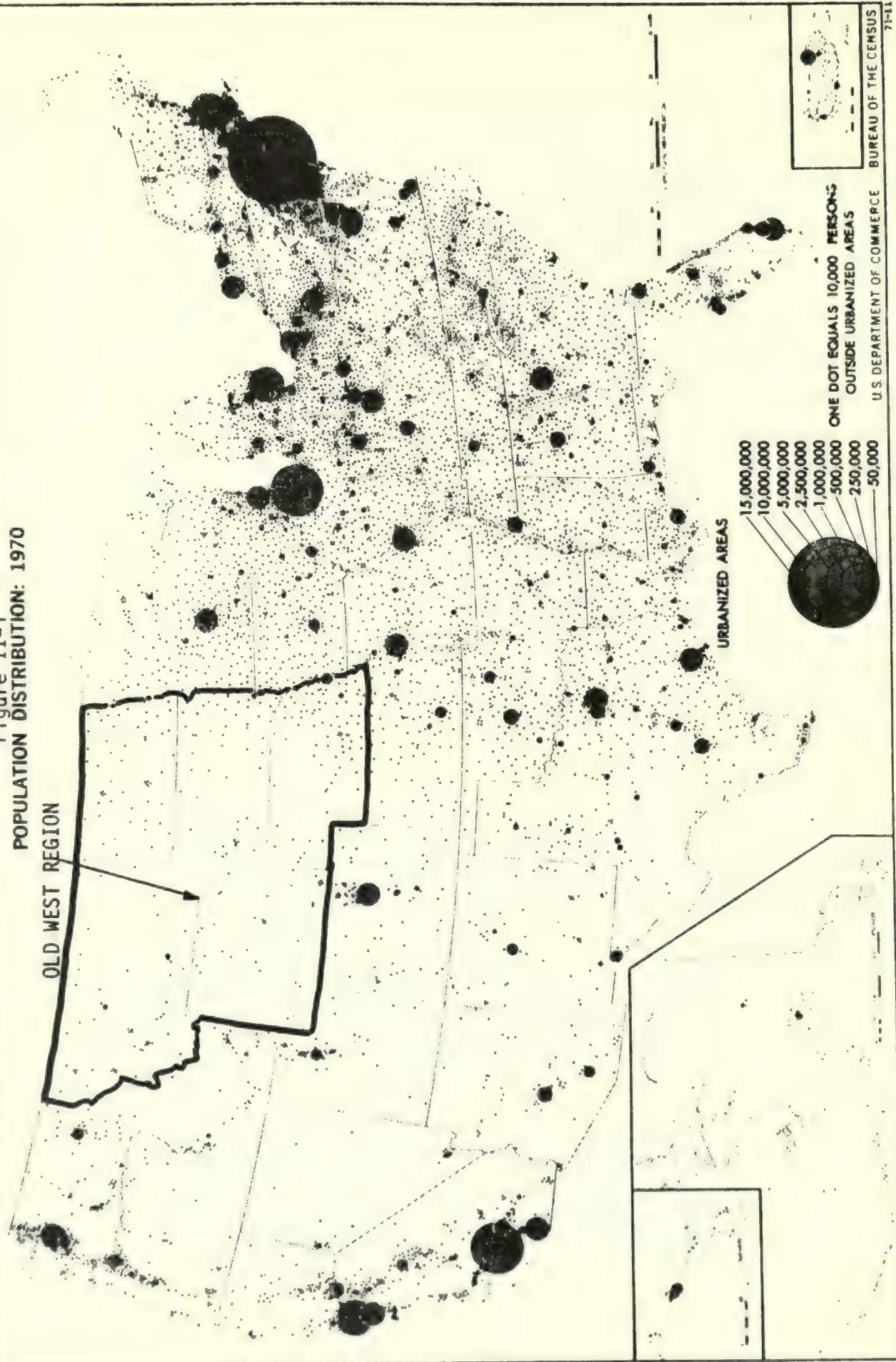
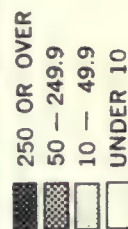


Figure II-2
POPULATION DENSITY BY COUNTIES: 1970

OLD WEST REGION

UNITED STATES
AVERAGE
57.5

POPULATION PER SQUARE MILE



71-16

U.S. DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS

Table II-2
POPULATION DENSITY
OLD WEST REGION AND NATION
1970

	<u>1970 Population</u>	<u>Land Area (sq. miles)</u>	<u>Average Population Density (persons/sq. mi.)</u>
Region	3,793,586	464,501	8.2
SMSA's	972,293	9,539	101.9
Non-SMSA's	2,488,877	357,759	7.0
Montana	694,409	145,587	4.8
SMSA's	169,171	5,303	31.9
Non-SMSA's	525,238	140,284	3.7
Nebraska	1,483,493	76,483	19.4
SMSA's (Region Portion)	634,260	1,674	378.9
Non-SMSA's	849,233	74,809	11.4
North Dakota	617,761	69,273	8.9
SMSA's (Region Portion)	73,653	1,749	42.1
Non-SMSA's	544,108	67,524	8.1
South Dakota	665,507	75,955	8.8
SMSA's	95,209	813	117.1
Non-SMSA's	570,298	75,142	7.6
Wyoming	332,416	97,203	3.4
SMSA's	-	-	-
Non-SMSA's	-	-	-
United States	203,211,926	3,536,855	57.5
SMSA's	139,418,811	387,658	359.6
Non-SMSA's	63,793,115	1,148,914	55.5

Source: 1) U.S. Bureau of the Census, County and City Data Book, 1972 (A Statistical Abstract Supplement), U.S. Government Printing Office, Washington, D.C., 1973.

2) See Table II-1, No. 1).

In fact, geographically the Region is largely encircled by such centers or urban-industrial growth. Minneapolis, Kansas City, Denver, Salt Lake City and Spokane are all relatively near but outside of the Region, while the central core of the Region is entirely devoid of any urban-economic concentration of activities.

Table II-3 indicates the rural and urban distribution of the Region's population in 1960 and 1970, Table II-4 lists the Standard Statistical Metropolitan Areas (SMSAs) in the Region and their population in 1960 and 1970, and Table II-5 provides similar data on all cities in the Region of over 10 thousand in 1960 or 1970. Using an urban-rural definition that counts persons as urban who live in "urbanized areas" and places of 2,500 persons or more outside "urbanized areas", about 52 percent of the Region's population was designated as rural in 1960 versus 46 percent in 1970 (see Table II-3). This compares with a nation whose rural population was about 30 percent in 1960 and just over 26 percent in 1970. Focusing just on urban areas with 10 thousand or more persons, 35 percent of the Region's population was located in such areas in 1960 versus 39 percent in 1970. The nation's urban areas with 10 thousand or more persons accounted for over 54 percent of the population in 1960 and 55 percent in 1970.

The foregoing data indicates for the Region a relatively stable division between urban and rural populations and similar stability within urban populations grouping. However, between 1960 and 1970 the greatest regional change appeared in the growth of persons living in urban areas with 5 to 10 thousand persons, increasing from 210 to 303 thousand or by 44 percent.

Within the Region, between 1960 and 1970 Montana showed relatively large increases in persons living in urban areas with 5 to 10 thousand people; Nebraska had relatively large population declines in areas under 2,500 persons and substantial increases in areas with 5 to 25 thousand people; North Dakota had relatively dramatic populations increases in areas of 10 to 25 thousand people; South Dakota had population increases in urban areas under 2,500, of 5 to 10 thousand and of over 25,000 persons, but declines in urban areas of 10 to 25 thousand; Wyoming had substantial increases in urban areas of 5 to 10 thousand persons and declines in urban areas of 2.5 or 5 thousand persons.

Table II-4 indicates that the population in the Region's seven SMSAs (including only persons living in the Region) increased from about 848 to 972 thousand, or 15 percent between 1960 and 1970. This represented about 23 percent of the Region's population in 1960 and 26 percent in 1970. On the other hand, the nation had 67 percent in 1960 and 69 percent in 1970 of its population living in SMSAs. Omaha is the largest SMSA in the Region, accounting for about 47 percent of all persons in the Region living in such areas in 1970. On the other hand, of the 45 cities (see

Table 11-3
POPULATION DISTRIBUTION BY RURAL AND URBAN AREA
OLD WEST REGION
1960 AND 1970

Rural and Urban Area ¹	1960				1970				Relative Percent Change 1960-1970
	Population	Percentage	Cumulative (Rural to Urban)	Cumulative (Urban to Rural)	Population	Percentage	Cumulative (Rural to Urban)	Cumulative (Urban to Rural)	
Region									
Rural	1,947,174	52.22	52.22	100.00	1,739,131	45.84	45.84	100.00	-10.68
Urban									
Under 2,500 ²	45,457	1.22	53.43	47.78	43,928	1.16	47.00	54.16	- 3.36
2,500-4,999	225,883	6.06	59.49	46.57	210,806	5.56	52.56	53.00	- 6.67
5,000-9,999	210,126	5.63	65.13	40.51	303,433	8.00	60.56	47.44	44.41
10,000-24,999	351,760	9.43	74.56	34.87	434,563	11.45	72.01	39.44	23.54
Over 25,000	948,723	25.44	100.00	25.44	1,061,725	27.99	100.00	27.99	11.91
(Total Urban)	(1,781,949)	(47.78)			(2,054,455)	(54.16)			
Total	3,729,123	100.00			3,793,586	100.00			1.73
Montana									
Rural	336,310	49.84	49.84	100.00	323,733	46.62	46.62	100.00	- 3.74
Urban									
Under 2,500 ²	10,133	1.50	51.34	50.16	12,056	1.74	48.36	53.38	18.98
2,500-4,999	59,858	8.87	60.21	48.66	55,021	7.92	56.28	51.64	- 8.08
5,000-9,999	38,758	5.74	65.96	39.79	66,578	9.59	65.87	43.72	71.78
10,000-24,999	66,533	9.86	75.82	34.04	85,852	12.36	78.23	34.13	29.04
Over 25,000	163,175	24.18	100.00	24.18	151,169	21.77	100.00	21.77	- 7.36
(Total Urban)	(338,457)	(50.16)			(370,676)	(53.38)			
Total	674,767	100.00			694,409	100.00			2.91
Nebraska									
Rural	645,277	45.72	45.72	100.00	570,895	38.48	38.48	100.00	-11.53
Urban									
Under 2,500 ²	32,458	2.30	48.02	54.28	28,299	1.91	40.39	61.52	-12.81
2,500-4,999	67,237	4.76	52.79	51.98	65,592	4.42	44.81	59.61	- 2.45
5,000-9,999	86,897	6.16	58.94	47.21	126,999	8.56	53.37	55.19	46.15
10,000-24,999	123,600	8.76	67.70	41.06	163,593	11.03	64.40	46.63	32.36
Over 25,000	455,861	32.30	100.00	32.30	528,115	35.60	100.00	35.60	15.85
(Total Urban)	(766,053)	(54.28)			(912,598)	(34.55)			
Total	1,411,330	100.00			1,483,493				5.11
North Dakota									
Rural	409,738	64.79	64.79	35.21	344,319	55.74	55.74	100.00	-15.97
Urban									
Under 2,500 ²	1,014	0.16	64.95	35.05	55	.01	55.75	44.26	-94.53
2,500-4,999	8,913	1.41	66.36	33.64	8,203	1.33	57.07	44.25	- 7.97
5,000-9,999	35,840	5.66	72.02	27.98	33,104	5.36	62.43	42.93	- 7.63
10,000-24,999	37,554	5.94	77.96	22.04	72,714	11.77	74.20	37.57	93.63
Over 25,000	139,387	22.04	100.00		159,366	25.80	100.00	25.80	14.33
(Total Urban)	(222,708)	(35.21)			(273,442)	(44.26)			
Total	632,446	100.00			617,761	100.00			- 2.32
South Dakota									
Rural	413,334	60.74	60.74	100.00	368,879	55.43	55.43	100.00	-10.76
Urban									
Under 2,500 ²	1,852	0.27	61.01	39.26	3,518	0.53	55.96	44.57	89.96
2,500-4,999	45,920	6.75	67.76	38.99	47,195	7.09	63.05	44.04	2.78
5,000-9,999	27,012	3.97	71.73	32.24	36,367	5.46	68.51	36.95	34.63
10,000-24,999	84,531	12.42	84.15	28.27	66,748	10.03	78.54	31.49	-21.04
Over 25,000	107,865	15.85	100.00	15.85	142,800	21.46	100.00	21.46	32.39
(Total Urban)	(267,180)	(39.26)			(296,628)	(44.57)			
Total	680,514	100.00			665,507				- 2.21
Wyoming									
Rural	142,515	43.18	43.18	100.00	131,305	39.50	39.50	100.00	- 7.87
Urban									
Under 2,500 ²	-								
2,500-4,999	43,955	13.32	56.49	56.82	34,795	10.47	49.97	60.50	-20.84
5,000-9,999	21,619	6.55	63.04	43.51	40,385	12.15	62.12	50.03	86.80
10,000-24,999	39,542	11.98	75.02	36.96	45,656	13.73	75.85	37.88	15.46
Over 25,000	82,435	24.97	100.00	24.98	80,275	24.15	100.00	24.15	- 2.62
(Total Urban)	(187,551)	(56.82)			(201,111)	(60.49)			
Total	330,066	100.00			332,416				0.71

¹ Rural population comprises all rural residents living on farms and rural non-farm population; and urban population comprises all persons living in urbanized areas and in places of 2,500 persons or more outside urbanized areas.

² Includes unincorporated parts of urbanized areas.

Source: See Table 11-1, No. 1).

Table II-4
POPULATION OF STANDARD
METROPOLITAN STATISTICAL AREAS
OLD WEST REGION
1960 AND 1970

<u>State, SMSA, County</u>	<u>1960</u>	<u>1970</u>	<u>Net Change in Population 1960-1970</u>
Montana			
Billing SMSA, Yellowstone County	79,016	87,367	8,351
Great Falls SMSA, Cascade County	73,418	81,804	8,386
Nebraska			
Lincoln SMSA, Lancaster County	155,272	167,972	12,700
Omaha, Nebraska-Iowa SMSA:	457,873	540,142	82,269
Douglas & Sarpy County, Nebraska			
& Pottawattomie County, Iowa			
Region Portion	374,771	453,151	78,380
Sioux City, Iowa-Nebraska SMSA	120,017	116,189	-3,828
Woodbury County, Iowa			
& Dakota County, Nebraska			
Region Portion	12,168	13,137	969
North Dakota			
Fargo-Moorhead, North Dakota-Minnesota SMSA	106,027	120,238	14,211
Cass County, North Dakota			
& Clay County, Minnesota			
Region Portion	66,947	73,653	6,706
South Dakota			
Sioux Falls, Minnehaha County	86,575	95,209	8,634
Wyoming			
None	--	--	--
Total	1,078,198	1,208,921	130,723
Region Portion	848,167	972,293	124,126
Percent of Region Population ¹	22.74	25.63	

¹ Includes only persons living in those portions of SMSA's within the Region.

Source: See Table II-1, No. 1).

Table II-5

POPULATION OF CITIES OVER 10,000 PEOPLE
OLD WEST REGION
1960 AND 1970

<u>State, City, County</u>	<u>1960</u>	<u>1970</u>	<u>Net Change in Population 1960-1970</u>
Montana	229,595	246,792	17,197
Anaconda, Deer Lodge	12,054	9,771	-2,283
Billings City, Yellowstone	52,851	61,581	8,730
Bozeman City, Gallatin	13,361	18,670	5,309
Butte City, Silver Bow	27,877	23,368	-4,509
Great Falls City, Cascade	55,244	60,091	4,847
Havre City, Hill	10,740	10,558	-182
Helena City, Lewis & Clark	20,227	22,730	2,503
Kalispell City, Flathead	10,151	10,526	375
Missoula City, Missoula	27,090	29,497	2,407
Nebraska	588,821	691,708	102,887
Beatrice City, Gage	12,132	12,389	257
Bellevue City, Sarpy	8,831	19,449	10,618
Columbus City, Platte	12,476	15,471	2,995
Fremont City, Dodge	19,698	22,962	3,264
Grand Island City, Hall	25,742	31,269	5,527
Hastings City, Adams	21,412	23,580	2,168
Kearney City, Buffalo	14,210	19,181	4,971
Lincoln City, Lancaster	128,521	149,518	20,997
Norfolk City, Madison	13,640	16,607	2,967
North Platte City, Lincoln	17,184	19,447	2,263
Omaha City, Douglas	301,598	347,328	45,730
Scottsbluff City, Scotts Bluff	13,377	14,507	1,130
North Dakota	186,912	232,080	45,168
Bismarck City, Burleigh	27,670	34,703	7,033
Dickinson City, Stark	9,971	12,405	2,434
Fargo City, Cass	46,662	53,365	6,703
Grand Forks Base (U), Grand Forks	1,573	10,474	8,901
Grand Forks City, Grand Forks	34,451	39,008	4,557
Jamestown City, Stutsman	15,163	15,385	222
Mandan City, Morton	10,525	11,093	568
Minot Base (U), Ward	2,395	12,077	9,682
Minot City, Ward	30,604	32,290	1,686
Williston City, Williams	11,866	11,280	-586

Table II-5 (cont)
POPULATION OF CITIES OVER 10,000 PEOPLE
OLD WEST REGION
1960 AND 1970

<u>State, City, County</u>	<u>1960</u>	<u>1970</u>	<u>Net Change in Population 1960-1970</u>
South Dakota	201,675	219,247	17,572
Aberdeen City, Brown	23,073	26,476	3,403
Brookings City, Brookings	10,558	13,717	3,159
Huron City, Beadle	14,180	14,299	119
Mitchell City, Davison	12,555	13,425	870
Pierre City, Hughes	10,088	9,699	-389
Rapid City, Pennington	42,399	43,836	1,437
Sioux Falls City, Lincoln/ Minnehaha	65,466	72,488	7,022
Watertown City, Codington	14,077	13,388	-689
Yankton City, Yankton	9,279	11,919	2,640
Wyoming	121,977	125,931	3,954
Casper City, Natrona	38,930	39,361	431
Cheyenne City, Laramie	43,505	40,914	-2,591
Laramie City, Albany	17,520	23,143	5,623
Rock Springs City, Sweetwater	10,371	11,657	1,286
Sheridan City, Sheridan	11,651	10,856	-795
Total	1,328,980	1,515,758	186,778
Percent of Region Population	35.64	39.96	

¹ The letter "U" is identified as unincorporated places.

Source: See Table II-1, No. 1).

Table II-5) in the Region who had 10 thousand or more people in 1960 or 1970, the population in these areas increased from about 1.33 million in 1960 to 1.52 million in 1970 or about 14 percent. This accounted for about 36 percent of the population in 1960 and 40 percent in 1970.

2.4 Racial Characteristics

The Region's population is almost entirely white (see Table II-6). In 1960 only 2.9 percent of the population was non-white (compared to 11.4 percent nationally); in 1970 the proportion of non-whites was 3.8 percent (compared to 12.5 percent nationally). In the Old West Region, the predominate non-white group is American Indians. In 1960 American Indians numbered an estimated 68 thousand (or just under 2 percent) in the Region versus almost 86 thousand (or slightly more than 2 percent of total regional population) in 1970. This compares with an estimated 764 thousand Indians nationally in 1970 or about 0.4 percent of the total national population. Only in South Dakota did the non-white population attain a level greater than 5 percent in 1970; largely because about 32 thousand of the Region's 86 thousand Indians resided in that State.

2.5 Age-Sex Characteristics

In 1960 and 1970 the Region's population tended to be concentrated in the younger and older age groups in relation to the nation, and to have relatively more males than females in comparison with the nation. Tables II-7 and II-8 indicate that 1) in most age groups under 20 years old there were proportionately more persons in the Region than the nation (the only exception being in 1970 in the 0-4 age group); 2) in all age groups between 20 and 64 years old there were proportionately fewer persons in the Region than in the nation, largely as a result of high out-migration of these age groups; and 3) in both age groups over 64 years old there were relatively more people in the Region than in the nation. Table II-9 indicates that in 1970 about 39.3 percent of the Region's population were age 0 to 19 versus 37.9 percent for the nation; 49.3 percent of the Region population were age 20-64 versus 52.3 percent for the nation; and 11.3 percent of the Region's inhabitants were 65 years old or more as opposed to 9.9 percent in the nation. Among the States, in 1970, Montana, North Dakota and South Dakota had more than 40 percent of their populations in the 0-19 age group; South Dakota had only 47.7 percent of its inhabitants in the 20-64 age bracket; and more than 12 percent of both Nebraska's and South Dakota's population were over 64 years old. Among the States, in 1970, Wyoming's population distribution by age group was most similar to the nation's. Between 1960 and 1970 the Region's population also tended to age; that is, by 1970 there were fewer persons proportionately in the 0-19 age group and relatively more persons 65 years old and over. This followed a national trend.

Table II-6

POPULATION BY RACE
OLD WEST REGION AND NATION
1960 AND 1970
(numbers are persons in thousands)

Year	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		United States	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1960														
White	3,621.1	97.1	650.7	96.4	1,374.8	97.4	619.5	98.0	653.1	96.0	322.9	97.8	158,831.7	88.6
Non-White	108.1	2.9	24.0	3.6	36.6	2.6	12.9	2.0	27.4	4.0	7.1	2.2	20,491.4	11.4
Black	34.8	0.9	1.4	0.2	29.3	2.1	0.8	0.1	1.1	0.2	2.2	0.7	18,871.8	10.5
Indian	68.3	1.8	21.2	3.1	5.5	0.4	11.7	1.9	25.8	3.8	4.0	1.2	523.6	0.3
Other	5.0	0.1	1.4	0.2	1.8	0.1	0.4	0.1	0.5	0.1	0.9	0.3	1,096.0	0.6
Total	3,729.1	100.0	674.8	100.0	1,411.3	100.0	632.4	100.0	680.5	100.0	330.1	100.0	179,323.2	100.0
1970														
White	3,648.8	96.2	663.0	95.5	1,432.9	96.6	599.5	97.1	630.3	94.7	323.0	97.2	177,749.0	87.5
Non-White	144.8	3.8	31.4	4.5	50.6	3.4	18.3	2.9	35.2	5.3	9.4	2.8	25,463.0	12.5
Black	48.6	1.3	2.0	0.3	39.9	2.7	2.5	0.4	1.6	0.2	2.6	0.8	22,580.3	11.1
Indian	85.5	2.2	27.1	3.9	6.6	0.4	14.4	2.3	32.4	4.9	5.0	1.5	792.7	0.4
Other	10.8	0.3	2.2	0.3	4.1	0.3	1.4	0.2	1.2	0.2	1.8	0.5	2,089.9	1.0
Total	3,793.6	100.0	694.4	100.0	1,483.5	100.0	617.8	100.0	665.5	100.0	332.4	100.0	203,211.9	100.0

Source: See Table II-1, No. 1).

Table 11-7

AGE-SEX POPULATION DISTRIBUTION
OLD WEST REGION AND NATION
1960

(numbers are persons in thousands)

	Region				Montana				Nebraska				North Dakota				South Dakota				Wyoming				United States			
	Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
0-4	219.3	5.9	227.3	5.1	40.9	6.0	42.2	6.2	78.5	5.6	81.7	5.8	39.1	6.2	40.5	6.4	40.8	6.0	42.3	6.2	20.0	6.1	20.6	6.2	5.6	5.8		
5-9	203.5	5.5	210.3	5.6	38.0	5.6	39.0	5.8	72.6	5.1	74.8	5.3	36.0	5.7	37.5	5.9	38.2	5.6	39.7	5.8	18.6	5.6	19.3	5.8	5.1	5.3		
10-14	176.7	4.7	183.4	4.9	33.1	4.9	33.9	5.0	62.7	4.4	65.5	4.6	31.7	5.0	32.9	5.2	33.2	4.9	34.3	5.0	15.9	4.8	16.9	5.1	4.6	4.8		
15-19	139.3	3.7	140.4	3.8	25.3	3.8	25.4	3.8	50.2	3.6	50.1	3.6	25.7	4.1	26.2	4.1	26.0	3.8	26.1	3.8	12.1	3.7	12.5	3.8	3.7	3.7		
20-24	111.1	3.0	108.3	2.9	19.9	3.0	19.6	2.9	42.5	3.0	40.5	2.9	19.0	3.0	19.1	3.0	19.6	2.9	19.6	2.9	10.1	3.1	9.5	2.9	3.1	2.9		
25-34	221.3	6.0	224.1	6.0	39.9	5.9	40.7	6.0	84.8	6.0	84.6	6.0	36.0	5.7	37.3	5.9	39.1	5.8	39.3	5.8	21.5	6.5	22.2	6.7	6.4	6.2		
35-44	223.9	6.0	229.3	6.2	42.2	6.2	43.7	6.4	85.6	6.1	85.0	6.0	35.5	5.6	37.4	5.9	39.3	5.8	41.0	6.0	21.3	6.4	22.2	6.7	7.0	6.6		
45-54	198.2	5.3	205.4	5.5	34.9	5.2	38.4	5.7	78.5	5.6	76.9	5.4	32.7	5.2	35.5	5.5	34.8	5.1	35.7	5.2	17.2	5.2	18.8	5.7	5.8	5.6		
55-59	83.5	2.2	86.5	2.3	13.4	2.0	15.1	2.2	35.1	2.5	33.8	2.4	13.3	2.1	14.5	2.3	15.3	2.2	15.9	2.3	6.5	2.0	7.2	2.9	2.4	2.3		
60-64	75.4	2.0	76.3	2.0	11.4	1.7	12.0	1.8	33.0	2.3	30.8	2.2	11.5	1.8	12.4	2.0	14.1	2.1	14.8	2.2	5.5	1.7	6.3	1.9	2.1	1.9		
65-74	125.9	3.4	124.8	3.4	20.8	3.1	22.2	3.3	55.1	3.9	50.1	3.5	18.4	2.9	19.4	3.1	23.4	3.4	23.8	3.5	8.3	2.5	9.3	2.8	3.3	2.9		
75 +	70.7	1.9	64.2	1.7	11.0	1.6	11.4	1.7	32.7	2.3	26.3	1.9	10.2	1.6	10.5	1.7	12.6	1.8	11.8	1.7	4.2	1.3	4.1	1.2	1.8	1.3		
Total ¹	1,848.8	49.6	1,880.3	50.4	331.0	49.0	343.7	50.9	711.3	50.4	700.0	49.6	309.2	48.9	323.2	51.1	336.2	49.4	344.3	50.6	161.1	48.8	169.0	51.2	50.7	49.3		

¹ Percent may not add due to rounding.

Source: See Table II-1, No. 1)

Table 11-8

AGE-SEX POPULATION DISTRIBUTION
OLD WEST REGION AND NATION

1970

(numbers are persons in thousands)

	Region				Montana				Nebraska				North Dakota				South Dakota				Wyoming				United States			
	Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
0-4	152.4	4.0	158.9	4.2	27.9	4.0	29.1	4.2	59.0	4.0	61.2	4.1	25.0	4.0	26.3	4.3	26.7	4.0	27.6	4.1	13.7	4.1	14.6	4.1	4.1	4.3		
5-9	189.6	5.0	196.6	5.2	35.3	5.1	37.0	5.3	72.4	4.9	74.8	5.0	31.5	5.1	32.7	5.3	33.7	5.1	34.9	5.3	16.7	5.0	17.1	5.1	4.8	5.0		
10-14	202.3	5.3	210.7	5.6	38.9	5.6	39.7	5.7	74.6	5.0	78.4	5.3	34.5	5.6	35.9	5.8	36.5	5.5	38.0	5.7	17.8	5.3	18.8	5.7	5.0	5.2		
15-19	189.4	5.0	192.1	5.1	34.8	5.0	35.5	5.1	71.8	4.8	71.4	4.8	31.7	5.1	33.1	5.3	34.7	5.2	35.3	5.3	16.4	4.9	16.9	5.1	4.6	4.7		
20-24	145.6	3.8	142.8	3.8	26.0	3.7	25.5	3.7	59.5	4.0	55.2	3.7	23.4	3.8	25.4	4.1	24.3	3.6	24.4	3.7	12.4	3.7	12.4	3.7	4.2	3.9		
25-34	210.8	5.6	208.7	5.5	40.1	5.8	39.8	5.7	84.1	5.7	82.9	5.6	32.4	5.3	33.0	5.3	34.0	5.1	33.1	5.0	20.2	6.1	20.0	6.0	6.2	6.0		
35-44	204.0	5.4	201.4	5.3	37.6	5.4	37.4	5.4	80.4	5.4	78.7	5.3	32.0	5.2	32.2	5.2	34.9	5.2	34.0	5.1	19.1	5.7	19.2	5.8	5.8	5.5		
45-54	203.8	5.4	203.6	5.4	38.7	5.6	39.2	5.6	80.0	5.4	77.4	5.2	31.5	5.1	32.4	5.2	35.5	5.3	36.0	5.4	18.6	5.6	18.7	5.6	5.9	5.5		
55-59	94.1	2.5	91.9	2.4	17.3	2.5	17.4	2.5	37.2	2.5	34.6	2.3	15.3	2.5	15.6	2.5	16.3	2.5	16.0	2.4	8.1	2.4	8.1	2.4	2.6	2.4		
60-64	84.1	2.2	81.4	2.1	13.9	2.0	14.6	2.1	35.1	2.4	31.7	2.1	13.6	2.2	13.9	2.3	15.0	2.2	14.3	2.1	6.6	2.0	6.9	2.1	2.3	2.0		
65-74	133.2	3.5	115.1	3.0	20.3	2.9	18.5	2.7	58.5	3.9	46.8	3.1	20.2	3.3	19.0	3.1	24.8	3.7	22.1	3.3	9.5	2.9	8.8	2.6	3.4	2.7		
75 +	104.4	2.7	76.6	2.0	16.7	2.4	13.2	1.9	46.8	3.2	31.5	2.1	15.1	2.4	12.1	2.0	19.2	2.9	14.4	2.2	6.6	2.0	5.3	1.6	2.3	1.5		
Total ¹	1,913.7	50.4	1,879.9	49.6	347.4	50.0	347.0	50.0	759.0	51.2	724.5	48.8	306.1	49.6	311.6	50.4	335.5	50.4	330.0	49.6	165.6	49.8	166.8	50.2	51.3	48.7		

¹ Percent may not add due to rounding.

Source: See Table 11-1, No. 1).

Table II-9

POPULATION AGE DISTRIBUTION
OLD WEST REGION AND NATION
1960 AND 1970
(in percent)

Age	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		United States	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
0-19	40.2	39.3	41.2	40.1	38.0	38.0	42.6	40.6	41.2	40.2	41.2	39.7	38.5	37.9
20-64	49.4	49.3	49.1	50.3	50.4	49.6	48.1	48.7	48.3	47.7	51.0	51.2	52.3	52.3
65+	10.3	11.3	9.7	9.9	11.6	12.4	9.3	10.7	10.5	12.1	7.9	9.1	9.2	9.9

Source: See Table II-1, No. 1).

Table II-10

POPULATION SEX RATIOS (MALE/FEMALE) BY AGE GROUP
OLD WEST REGION AND NATION
1960 AND 1970

	0-19		20-64		65+		Total	
	1960	1970	1960	1970	1960	1970	1960	1970
Region	1.03	1.03	1.02	0.99	0.96	0.81	1.02	0.98
Montana	1.02	1.03	1.05	1.00	1.06	0.86	1.04	1.00
Nebraska	1.03	1.03	0.98	0.96	0.87	0.74	0.98	0.95
North Dakota	1.03	1.04	1.05	1.03	1.05	0.88	1.05	1.02
South Dakota	1.03	1.03	1.02	0.99	0.99	0.83	1.02	0.98
Wyoming	1.04	1.04	1.05	1.00	1.08	0.87	1.05	1.01
United States	1.03	1.03	0.96	0.94	0.83	0.72	0.97	0.95

Source: See Table II-1, No. 1).

Table II-10 summarizes the male to female population ratios (i.e., sex ratios) for various age-groups and the entire regional and national populations in 1960 and 1970. Overall there have tended to be relatively more males in the Region (sex ratios of 1.02 in 1960 and 0.98 in 1970) as compared to the nation (sex ratios of 0.97 in 1960 and 0.95 in 1970), but the difference declined appreciably between 1960 and 1970 (from about 5 percent to 3 percent). The Indo-China War may have had some effect on this change. However, while there have been relatively more males in the Region's 20-64 age group in comparison with the nation (6 percent higher in 1960 and 5 percent more in 1970), really large differences have occurred in the 65 and over age group (though this contains relatively fewer people). In this age group the Region's sex ratios were 0.96 in 1960 and 0.81 in 1970 versus 0.83 in 1960 and 0.72 in 1970 for the nation. Males appear to be living longer in the Region than in the nation, though this difference appears to be rapidly diminishing.

Table II-11 shows similar age and sex data for American Indians living in the Region as of 1970.¹ Table II-11 indicates that the Region's Indian population is much younger than that of the Region as a whole, having over 56 percent in the 0-19 age group (versus 39 percent for the Region), and only about 39 percent in the 20-64 age group (as against 49 percent for the Region) and 5 percent 65 years old or more (versus 11 percent for the Region) in 1970. On the other hand, in 1970 there were fewer Indian males proportionately than in the regional population, the sex-ratio being 0.96 versus 0.98 for the Region. However, the major differences were the low proportion of Indian males age 20-64 (Indian sex ratio of 0.91 versus 1.03 for the Region) and the high proportion of Indian males 65 years old and over (Indian sex ratio of 0.99 as against 0.81 for the Region) in 1970. The Indian middle-aged males may have out-migrated for jobs, possibly leaving families in the Region. Older Indian males have apparently returned or remained in the Region and Indian females have shorter life expectancies compared to Indian males relative to the population as a whole.

2.6 Fertility and Death Rates

Tables II-12 and II-13 summarize birth and death rate statistics accumulated for the Region. In 1960 the general fertility rate (i.e., births per thousand women ages 15 through 44) was about 15 percent higher in the Region (with an estimated rate of 135.8) in comparison with the nation (with an estimated rate of 118). However, the decline of the Region's general fertility rate was much more rapid than the nation's during the 1960's, so that by 1970 the Region's general fertility rate was only about 2 percent higher than the rate for the nation (at 90.0 versus 87.9 respectively). In fact, by 1970 the general fertility rates of Nebraska and certain sub-State areas of Montana, North Dakota and

1

This table also indicates that about 25 percent of the estimated 82.4 thousand Indians in the Region as of 1970 lived in urban areas and the remainder resided in rural areas, probably in or near Indian reservations.

Table 11-11

**AMERICAN INDIANS
AGE, SEX AND URBAN-RURAL DISTRIBUTION
OLD WEST REGION
1970**

Sex-Ages	Region				Montana				Nebraska				North Dakota				South Dakota				Wyoming			
	Male		Female		Male		Female		Male		Female		Male		Female		Male		Female		Male		Female	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
C-4	6,060	7.27	6,303	7.27	12,003	14.55	1,751	6.64	1,730	6.56	459	6.86	526	7.86	978	7.21	1,020	7.52	2,466	7.94	2,413	7.77	346	7.23
5-9	6,435	7.76	6,318	7.66	12,723	15.42	2,043	7.74	2,065	7.83	542	8.10	504	7.53	1,055	7.78	1,187	8.75	2,402	7.74	2,275	7.33	363	7.55
10-14	5,583	7.25	5,856	7.13	11,869	14.39	2,085	7.90	1,975	7.49	377	5.64	395	5.90	1,032	7.61	1,023	7.54	2,131	6.26	2,187	7.05	353	7.45
15-19	4,785	5.80	5,003	6.07	9,794	11.87	1,440	5.46	1,622	6.15	244	3.65	317	4.74	852	6.28	843	6.21	1,969	6.34	1,990	6.41	285	5.23
20-24	2,716	3.29	3,102	3.76	5,818	7.05	876	3.32	963	3.65	333	4.98	291	4.35	381	2.81	471	3.47	500	2.90	1,144	3.69	226	4.70
25-29	2,443	2.98	2,716	3.29	5,159	6.27	1,527	5.79	1,554	5.90	475	7.10	453	6.77	667	4.92	684	5.04	1,398	4.30	1,464	4.56	373	7.95
30-34	3,230	3.91	3,817	4.62	7,047	8.54	1,144	4.34	1,304	4.94	242	3.62	317	4.74	511	3.77	627	4.62	1,180	3.80	1,405	4.53	153	3.16
35-39	2,822	3.42	2,901	3.57	5,723	6.94	905	3.43	874	3.31	223	3.33	213	3.18	415	3.06	493	3.63	1,071	3.45	1,057	3.33	255	4.93
40-44	1,102	1.34	1,254	1.52	2,356	2.86	337	1.28	439	1.66	89	1.33	117	1.75	208	1.53	142	1.05	431	1.39	502	1.62	37	0.77
45-49	927	1.12	914	1.11	1,841	2.23	245	.93	235	.89	81	1.21	128	1.91	213	1.57	150	1.11	343	1.10	377	1.21	45	0.94
50-54	1,404	1.70	1,406	1.70	2,810	3.41	459	1.74	428	1.62	108	1.61	138	2.06	173	1.28	222	1.64	568	1.83	552	1.78	96	2.00
55-59	605	.81	600	.80	1,205	1.47	192	.73	194	.73	64	.96	54	.81	86	.63	132	.97	293	.94	284	.91	33	.70
60-64	40,472	49.05	42,010	50.95	82,489	100.00	13,004	49.29	13,381	50.71	3,237	48.39	3,453	51.61	6,571	48.44	6,994	51.56	15,152	48.81	15,891	51.19	2,515	52.33
Total	40,472	49.05	42,010	50.95	82,489	100.00	13,004	49.29	13,381	50.71	3,237	48.39	3,453	51.61	6,571	48.44	6,994	51.56	15,152	48.81	15,891	51.19	2,515	52.33
Sex Ratios																								
0-19	46,389		56,31		14,711		3,364		50,28		7,990		58,90		17,834		57,45		2,490		2,490		2,490	
20-24	31,939		38,76		10,403		2,962		36,58		4,962		44,28		11,512		37,08		2,100		2,100		2,100	
25-29	4,163		5,05		1,271		364		5,44		613		4,52		1,697		5,47		216		216		216	
30-34																								
35-39																								
40-44																								
45-49																								
50-54																								
55-59																								
60-64																								
All Ages																								
Both Sexes																								
Urban	20,267		24,60		5,070		3,232		48,45		1,810		13,34		9,115		29,36		1,040		1,040		1,040	
Rural	52,114		75,40		21,315		3,439		51,55		11,755		86,66		21,528		70,64		3,677		3,677		3,677	
Total	72,381				26,385		6,671				13,565				31,043				4,717		4,717		4,717	

Note: North Dakota, South Dakota and Montana figures obtained from Subject Report American Indians PC (2)-IF Table 2, Bureau of Census, Nebraska and Wyoming figures obtained from Characteristics of the Population Census Bureau Report-Part 29, and 32, Vol. 1-1970. Urban and rural data obtained from Subject Report on American (Omaha) Indians Table 1-1970 (for all states).

Because of different sources used the two totals given for American Indians are not equal.

Source: 1) U.S. Bureau of Census, Census of Population: 1970, Vol. 1, Characteristics of the Population, U.S. Government Printing Office, Washington, D.C., 1973.
2) U.S. Bureau of Census, Census of Population: 1970, Final Report PC (2)-IF American Indians, U.S. Government Printing Office, Washington, D.C., 1973.

Table II-12
GENERAL FERTILITY RATE ¹
OLD WEST REGION AND NATION
1960-1970

	General Fertility Rate ¹			Annual Rate of Change (in percent)	
	1960	1965	1970	1960-65	1965-70
Region	135.8	105.2	90.0	-5.2	-2.7
Montana	136.9	104.0	91.1	-5.7	-2.4
Northeast	152.1	113.0	93.8	-6.1	-3.2
Southeast	127.7	94.5	87.8	-6.2	-1.4
West	127.9	103.3	91.4	-4.4	-2.2
Nebraska	130.3	101.1	87.0	-5.2	-2.7
Central	120.9	91.5	87.3	-5.7	-0.9
East (Omaha)	137.5	113.3	93.6	-3.9	-3.3
Northeast	137.4	103.2	89.1	-5.9	-2.6
Southeast	123.6	90.1	74.0	-6.5	-3.3
West (Panhandle)	127.3	92.4	83.9	-6.6	-1.8
North Dakota	143.0	113.0	91.2	-4.8	-3.6
Northeast	149.3	128.9	98.7	-3.0	-4.3
Northwest	146.3	117.7	99.2	-4.4	-3.0
Southeast	135.5	98.2	80.0	-6.7	-3.5
Southwest	144.6	113.5	91.7	-5.0	-3.6
South Dakota	142.1	111.5	92.0	-5.0	-3.3
Northeast	128.3	96.9	80.4	-5.8	-3.2
Southeast	133.8	108.9	87.1	-4.2	-3.7
West	165.6	128.9	109.1	-5.1	-2.9
Wyoming	131.1	99.4	95.5	-5.7	-0.8
East	131.2	100.2	94.3	-5.5	-1.2
Northwest	124.9	93.7	92.2	-5.9	-0.3
Southwest	138.3	101.1	108.6	-6.5	-1.4
United States	118.0	96.6	87.9	-4.0	-1.7

¹

Births per thousand women ages 15 through 44.

Note: 1965 female population (age 15-44) was derived from the population model (see Appendix H).

Source: 1) Vital Statistics of the United States; 1960, 1970, Volume I, Natality, U.S. Department of Health, Education, and Welfare.

2) U.S. Bureau of the Census, Census of Population: 1960, 1970, General Characteristics of the Population, U.S. Government Printing Office, Washington, D.C.

Table II-13
DEATH RATES
OLD WEST REGION AND NATION
1960, 1970, 1973
(deaths per thousand persons)

	<u>1960</u>	<u>1970</u>	<u>1973</u>
Region	9.78	9.59	9.48
Montana	9.95	9.51	9.53
Northeast	9.38	9.52	9.50
Southeast	9.42	9.05	9.11
West	11.14	9.91	9.95
Nebraska	10.58	9.87	9.72
Central	11.48	11.68	11.49
East (Omaha)	9.87	8.59	8.08
Northeast	11.31	11.66	10.92
Southeast	10.37	10.10	9.92
West (Panhandle)	10.17	10.72	10.72
North Dakota	8.59	9.09	9.02
Northeast	8.91	9.38	8.61
Northwest	8.92	8.62	9.14
Southeast	8.69	9.74	9.60
Southwest	7.85	8.34	8.55
South Dakota	9.73	9.87	9.70
Northeast	10.07	10.67	10.26
Southeast	9.76	9.83	9.72
West	9.32	9.09	9.14
Wyoming	8.47	8.84	8.68
East	8.28	8.74	8.61
Northwest	8.51	9.47	8.50
Southwest	9.63	8.71	9.35
United States	9.54	9.45	9.40

- Source: 1) Vital Statistics of the United States: 1960 and 1970, Volume II, Mortality, U.S. Department of Health, Education and Welfare.
- 2) U.S. Bureau of the Census, Census of Population: 1960 and 1970, General Characteristics of the Population, U.S. Government Printing Office, Washington, D.C.
- 3) U.S. Bureau of the Census, Current Population Reports: 1974, P-26, Federal-State Cooperative Program for Population Estimates, U.S. Government Printing Office, Washington, D.C.

South Dakota were below the national rate. Only two sub-State areas, West South Dakota and Southwest Wyoming had estimated general fertility rates in excess of 100 in 1970. In West South Dakota a large proportion of the population (over 10 percent in 1970) is Indian, a group with historically higher fertility rates.

The death rates for the Region are very similar to those of the nation. During the period 1960 to 1973 these rates have been coming closer together. Table II-13 indicates that in the successive years 1960, 1970 and 1973, the Region's death rates (i.e., deaths per thousand people) were 9.78, 9.59 and 9.48, respectively, or 2.5 percent, 1.5 percent and 0.85 percent higher respectively than the national rates of 9.54, 9.45 and 9.40 for each of these same years. The States with the higher death rates, Nebraska and South Dakota, are the ones with relatively older (65 and over) populations (see Table II-9).

2.7 Migration Trends

Tables II-14 through II-20 summarize recent migration trends. This presentation underscores the extensive physical mobility of persons in the Region, a phenomenon long associated with this part of the nation.

Table II-14 provides an estimate of net migration in total and by age group occurring between 1960 and 1970 in the Region and in each State and sub-State area.¹ From this data it appears that between 1960 and 1970 there was a net migration out of the Region of over 383 thousand persons, or more than 10 percent of either the 1960 or 1970 population. The Region's annual growth rate of the natural population change was 1.1 percent per year during the 1960's, but because of the high net out-migration the actual population growth in this period was only 0.2 percent per year. More dramatic are the gross population movements. Between 1965 and 1970 net out-migration from the Region was an estimated 194 thousand persons.² However, this masks the fact that during this mere 5-year period about 504 thousand persons moved out of the Region (or about 14 percent of the 1960 population) while about 310 thousand persons moved into the Region (see Table II-15). In addition, between 1965 and 1970 nearly 62 thousand persons moved between States in the Old West Region. Overall about 16 percent of the 1965 population (5 years old and over) out-migrated from the States in the Region between 1965 and 1970 compared to about 9 percent out-migrating from all states in the nation.

Table II-14 also shows that out-migration was especially large among the Region's 20-29 year old age group. Between 1960 and 1970 the net out-migration

¹ Population data for 1960 and 1970 were obtained from the U.S. Bureau of the Census. The natural increase population estimate for 1970 was obtained from data obtained on fertility rates, and net migration was then obtained as the difference between total population and natural increase population. The procedure is fully explained in Appendix H.

² From U.S. Census, those reporting in 1970 and 5 years of age or more.

Table II-14
NET MIGRATION BY AREA
OLD WEST REGION
1960 AND 1970

Area and Age Group	Population		Population by Natural Increase Estimation 1970	Net Migration 1960-1970	Annual Rate of Change 1960-1970 (in percent)	
	1960	1970			Actual	Natural Increase
Region						
0-19	1,500,297	1,491,941	1,644,355	-152,414	0.1	0.9
20-29	435,598	511,152	633,087	-121,935	1.6	3.7
30-44	682,489	602,184	655,269	- 53,085	-1.3	-0.4
45-64	725,251	758,991	804,793	- 45,802	0.5	1.0
65+	385,588	429,318	439,552	- 10,234	1.1	1.3
Total	3,729,123	3,793,586	4,177,056	-383,470	0.2	1.1
Montana						
0-19	277,959	278,276	302,686	- 24,410	0.0	0.8
20-29	78,460	93,724	116,438	- 22,714	1.8	3.9
30-44	127,704	112,675	118,091	- 5,416	-1.3	-0.8
45-64	125,224	140,998	148,855	- 7,857	1.2	1.7
65+	65,420	68,736	71,422	- 2,686	0.5	0.9
Total	674,767	694,409	757,492	- 63,083	0.3	1.1
Northeast						
0-19	106,110	99,801	122,063	- 22,262	-0.6	1.4
20-29	31,233	31,802	42,716	- 10,914	0.2	3.1
30-44	47,853	40,260	46,359	- 6,099	-1.7	-0.3
45-64	43,491	48,765	53,926	- 5,161	1.1	2.1
65+	23,136	23,718	24,577	- 859	0.2	0.6
Total	251,823	244,346	289,641	- 45,295	-0.3	1.4
Southeast						
0-19	87,664	85,664	91,713	- 6,049	-0.2	0.5
20-29	24,817	30,554	37,381	- 6,827	2.1	4.0
30-44	40,768	34,996	37,659	- 2,663	-1.5	-0.8
45-64	37,331	43,228	46,366	- 3,138	1.5	2.1
65+	19,322	20,699	21,756	- 1,057	0.7	1.2
Total	209,902	215,141	234,875	- 19,734	0.2	1.1
West						
0-19	84,185	92,811	88,910	3,901	1.0	0.5
20-29	22,410	31,368	36,341	- 4,973	3.3	4.7
30-44	39,083	37,419	34,073	3,346	-0.4	-1.4
45-64	44,402	49,005	48,563	442	1.0	0.9
65+	22,962	24,319	25,089	- 770	0.6	0.9
Total	213,042	234,922	232,976	1,946	1.0	0.9

NET MIGRATION BY AREA
OLD WEST REGION
1960 AND 1970

Area and Age Group	Population		Population by Natural Increase Estimation 1970	Net Migration 1960-1970	Annual Rate of Change 1960-1970 (in percent)	
	1960	1970			Actual	Natural Increase
Nebraska						
0-19	536,108	563,594	590,633	- 27,039	0.5	1.0
20-29	165,599	203,740	226,316	- 22,576	2.1	3.1
30-44	257,462	237,012	249,396	- 12,384	-0.8	-0.3
45-64	288,005	295,621	306,826	- 11,205	0.3	0.6
65+	164,156	183,526	184,244	- 718	1.1	1.1
Total	1,411,330	1,483,493	1,557,415	- 73,922	0.5	1.0
Central						
0-19	116,827	114,826	119,948	- 5,122	-0.2	0.3
20-29	30,402	36,868	51,554	- 14,686	1.9	5.1
30-44	54,642	47,886	47,668	218	-1.3	-1.4
45-64	67,878	68,012	68,620	- 608	0.0	0.1
65+	41,936	46,486	45,770	716	1.0	0.9
Total	311,685	314,078	333,560	- 19,482	0.1	0.7
East (Omaha)						
0-19	181,689	220,888	217,021	3,867	1.9	1.8
20-29	61,544	82,712	72,349	10,363	2.9	1.6
30-44	92,064	95,492	92,223	3,269	0.4	0.0
45-64	90,559	100,113	103,613	- 3,500	1.0	1.3
65+	45,083	52,708	52,285	423	1.6	1.5
Total	470,939	551,913	537,491	14,422	1.6	1.3
Northeast						
0-19	85,926	82,537	91,566	- 9,029	-0.4	0.6
20-29	21,468	22,851	36,510	- 13,659	0.6	5.2
30-44	37,458	32,093	33,476	- 1,383	-1.6	-1.1
45-64	47,188	45,346	46,914	- 1,568	-0.4	-0.1
65+	28,022	31,462	32,143	- 681	1.2	1.4
Total	220,062	214,289	240,609	- 26,320	-0.3	0.9
Southeast						
0-19	108,907	109,211	117,234	- 8,023	0.0	0.7
20-29	40,583	49,621	47,730	1,891	2.0	1.6
30-44	53,860	46,694	57,909	- 11,215	-1.4	0.7
45-64	62,096	61,901	64,920	- 3,019	0.0	0.4
65+	38,815	40,968	41,943	- 975	0.5	0.8
Total	304,261	308,395	329,736	- 21,341	0.1	0.8
West (Panhandle)						
0-19	42,759	36,132	44,864	- 8,732	-1.7	0.5
20-29	11,602	11,688	18,173	- 6,485	0.1	4.4
30-44	19,438	14,847	18,120	- 3,273	-2.7	-0.7
45-64	20,284	20,249	22,759	- 2,510	0.0	1.1
65+	10,300	11,902	12,103	- 201	1.4	1.6
Total	104,383	94,818	116,019	- 21,201	-1.0	1.1

Table II-14 (cont.)

NET MIGRATION BY AREA
OLD WEST REGION
1960 AND 1970

Area and Age Group	Population		Population by Natural Increase Estimation 1970	Net Migration 1960-1970	Annual Rate of Change 1960-1970 (in percent)	
	1960	1970			Actual	Natural Increase
North Dakota						
0-19	269,615	250,661	294,007	- 43,346	-0.7	0.9
20-29	74,029	83,370	115,484	- 32,114	1.2	4.3
30-44	110,270	95,047	110,054	- 15,007	-1.5	-0.0
45-64	119,941	122,315	132,488	- 10,173	0.2	1.0
65+	58,591	66,368	68,389	- 2,021	1.2	1.5
Total	632,446	617,761	720,422	-102,661	-0.2	1.3
Northeast						
0-19	59,298	58,186	66,951	- 8,765	-0.2	1.2
20-29	17,188	21,876	25,515	- 3,639	2.4	3.9
30-44	23,668	21,464	24,789	- 3,325	-1.0	0.5
45-64	26,915	26,343	28,569	- 2,226	-0.2	0.6
65+	13,728	15,658	15,892	- 234	1.3	1.5
Total	140,797	143,527	161,716	- 18,189	0.2	1.4
Northwest						
0-19	57,232	53,397	64,894	- 11,497	-0.7	1.2
20-29	16,093	18,486	23,795	- 5,309	1.4	3.8
30-44	23,519	20,909	23,752	- 2,843	-1.2	0.1
45-64	23,852	25,253	28,024	- 2,771	0.6	1.6
65+	11,758	12,307	12,299	8	0.5	0.4
Total	132,454	130,352	152,764	- 22,412	-0.2	1.4
Southeast						
0-19	84,262	76,209	87,723	- 11,514	-1.0	0.4
20-29	23,649	25,998	36,875	- 10,877	0.9	4.3
30-44	35,596	29,545	35,288	- 5,743	-1.9	-0.1
45-64	41,681	40,625	43,685	- 3,060	-0.3	0.5
65+	21,219	24,689	26,064	- 1,375	1.5	2.0
Total	206,407	197,066	229,635	- 32,569	-0.5	1.1
Southwest						
0-19	68,823	62,869	74,439	- 11,570	-0.9	-0.8
20-29	17,099	17,010	29,299	- 12,289	-0.1	5.2
30-44	27,487	23,129	26,225	- 3,096	-1.7	-0.5
45-64	27,493	30,094	32,210	- 2,116	0.9	1.6
65+	11,886	13,714	14,134	- 420	1.4	1.7
Total	152,788	146,816	176,307	- 29,491	-0.4	1.4

Table II-14 (cont.)

NET MIGRATION BY AREA
OLD WEST REGION
1960 AND 1970

Area and Age Group	Population		Population by Natural Increase Estimation 1970	Net Migration 1960-1970	Annual Rate of Change 1960-1970 (in percent)	
	1960	1970			Actual	Natural Increase
South Dakota						
0-19	280,547	267,387	309,104	- 41,717	0.5	1.0
20-29	76,988	84,013	118,173	- 34,160	0.9	4.2
30-44	120,834	100,526	115,700	- 15,174	-1.9	-0.4
45-64	130,632	133,097	142,000	- 8,903	0.2	0.8
65+	71,513	80,484	82,675	- 2,191	1.2	1.4
Total	680,514	665,507	767,652	-102,145	-0.2	1.2
Northeast						
0-19	92,053	83,265	94,448	- 11,183	-1.0	0.3
20-29	23,291	25,409	40,422	- 15,013	0.9	5.4
30-44	39,144	30,455	35,535	- 5,080	-2.5	-1.0
45-64	46,017	44,649	47,637	- 2,988	-0.3	0.3
65+	25,964	29,181	30,437	- 1,256	1.2	1.6
Total	226,469	212,959	248,479	- 35,520	-0.6	0.9
Southeast						
0-19	97,299	95,819	105,406	- 9,587	-0.2	0.8
20-29	26,453	31,016	41,389	- 10,373	1.6	4.4
30-44	43,193	36,523	40,078	- 3,555	-1.7	-0.8
45-64	48,048	49,588	51,635	- 2,047	0.3	0.7
65+	27,571	31,136	31,760	- 624	1.2	1.4
Total	242,564	244,082	270,268	- 26,186	0.1	1.1
West						
0-19	91,195	88,303	109,250	- 20,947	-0.3	1.8
20-29	27,244	27,588	36,362	- 8,774	0.1	2.8
30-44	38,497	33,548	40,087	- 6,539	-1.4	0.4
45-64	36,567	38,860	42,728	- 3,868	0.6	1.5
65+	17,978	20,167	20,478	- 311	1.1	1.3
Total	211,481	208,466	248,905	- 40,439	-0.1	1.6
Wyoming						
0-19	136,068	132,023	147,925	- 15,902	-0.3	0.8
20-29	40,522	46,305	56,676	- 10,371	1.3	3.3
30-44	66,219	56,924	62,028	- 5,104	-1.5	-2.2
45-64	61,449	66,960	74,624	- 7,664	0.9	1.9
65+	25,908	30,204	32,822	- 2,618	1.5	2.3
Total	330,166	332,416	374,075	- 41,659	0.1	1.2
East						
0-19	99,578	98,681	109,815	- 11,134	-0.1	1.0
20-29	31,561	36,804	41,093	- 4,289	1.5	2.6
30-44	49,593	42,972	47,814	- 4,842	-1.4	-0.4
45-64	44,624	48,702	54,882	- 6,180	0.9	2.0
65+	19,008	22,073	23,973	- 1,900	1.5	2.3
Total	244,364	249,232	277,577	- 28,345	0.2	1.3

Table II-14 (cont.)

NET MIGRATION BY AREA
OLD WEST REGION
1960 AND 1970

Area and Age Group	Population		Population by Natural Increase Estimation 1970	Net Migration 1960-1970	Annual Rate of Change 1960-1970 (in percent)	
	1960	1970			Actual	Natural Increase
	(percentage)					
Wyoming						
Northwest						
0-19	20,635	18,039	21,117	- 3,078	-1.4	0.2
20-29	5,036	5,078	8,817	- 3,739	0.1	5.4
30-44	9,117	7,617	7,948	- 331	-1.8	-1.4
45-64	9,008	9,968	10,832	- 864	1.0	1.8
65+	3,806	4,596	4,620	- 24	1.9	1.9
Total	47,602	45,298	53,334	- 8,036	-0.5	1.1
Southwest						
0-19	15,855	15,303	16,993	- 1,690	-0.4	0.7
20-29	3,925	4,423	6,766	- 2,343	1.2	5.3
30-44	7,509	6,335	6,266	69	-1.7	-1.8
45-64	7,817	8,290	8,910	- 620	0.6	1.3
65+	3,094	3,535	4,229	- 694	1.3	3.1
Total	38,200	37,886	43,164	- 5,278	-0.1	1.2

Source: See Table II-1, No. 1); Migration and natural increase derived as described in Appendix H.

Table II-15

STATE MIGRATION
 OLD WEST REGION
 1965-1970

(numbers of persons 5 years old and over)

	<u>Inmigrants</u>	<u>Outmigrants</u>
Montana	75,090	109,617
Nebraska	134,332	175,487
North Dakota	55,768	106,721
South Dakota	55,266	102,097
Wyoming	52,092	72,150
Intra-Regional	61,731	61,731
Regional	310,817	504,341
Total	372,548	566,072

Source: U.S. Bureau of the Census, Census of Population: 1970, Subject Reports, Final Report PC(2)-23, Mobility for States and the Nation, U.S. Government Printing Office, Washington, D.C., 1973.

Table II-16

INMIGRANTS BY STATE OF RESIDENCE
OLD WEST REGION
1965-1970
(numbers of persons 5 years old and over)

Origin 1965	Destination 1970					Total
	Montana	Nebraska	North Dakota	South Dakota	Wyoming	
Total	75,090	134,332	55,768	55,266	52,092	372,548
Montana	--	1,513	3,527	1,604	3,578	10,222
Nebraska	1,026	--	1,394	4,850	3,890	11,160
North Dakota	5,949	1,978	--	4,504	1,478	13,909
South Dakota	2,434	6,491	4,376	--	3,041	16,342
Wyoming	4,350	3,143	945	1,660	--	10,098
Illinois	1,979	6,485	1,900	1,942	1,202	13,508
Minnesota	3,480	5,030	12,271	8,131	863	29,775
Texas	2,215	5,336	2,054	1,552	2,333	13,490
Colorado	3,487	9,351	992	2,001	7,215	23,046
Washington	8,130	2,247	1,808	1,105	954	14,244
Oregon	3,063	1,209	648	579	840	6,339
California	10,861	12,169	4,874	4,221	4,718	36,843
Iowa	927	20,737	1,608	6,574	929	30,775
Missouri	1,186	5,750	1,188	1,258	958	10,340
Kansas	971	10,624	882	1,190	1,294	14,961
Idaho	3,945	857	206	371	1,599	6,978
Utah	1,960	1,064	299	189	3,003	6,515
Other	19,127	40,348	16,796	13,535	14,197	104,003

Source: See Table II-15.

Table II-17

OUTMIGRANTS BY STATE OF RESIDENCE
OLD WEST REGION
1965-1970
(numbers of persons 5 years old and over)

Destination 1970	Origin 1965					Total
	Montana	Nebraska	North Dakota	South Dakota	Wyoming	
Total	109,617	175,487	106,721	102,097	72,150	566,072
Montana	---	1,026	5,949	2,434	4,350	13,759
Nebraska	1,513	---	1,978	6,491	3,143	13,125
North Dakota	3,527	1,394	---	4,376	945	10,242
South Dakota	1,604	4,850	4,504	---	1,600	12,618
Wyoming	3,578	3,890	1,478	3,041	---	11,987
Illinois	1,971	8,172	3,147	3,864	1,674	18,828
Minnesota	4,525	6,638	23,989	17,153	1,082	53,387
Texas	3,467	10,167	3,638	2,951	3,434	23,657
Colorado	5,224	17,367	3,887	5,740	12,527	44,745
Arizona	3,566	4,689	2,316	2,382	2,724	15,677
Washington	22,278	5,632	10,376	5,490	3,931	47,707
Oregon	6,157	2,432	2,800	2,074	1,761	15,224
California	14,919	22,174	11,521	11,049	9,458	69,121
Wisconsin	1,478	3,090	2,968	3,634	716	11,886
Iowa	1,053	16,843	2,387	6,799	864	27,946
Missouri	1,500	7,956	1,696	2,227	1,146	14,525
Kansas	1,293	10,651	1,455	1,930	1,363	16,692
Idaho	6,179	1,275	1,267	806	2,030	11,557
Utah	2,156	766	534	396	3,476	7,328
Other	23,629	46,475	20,831	19,260	15,866	126,061

Source: See Table II-15.

Table II-18
MIGRATION BY SEX AND AGE
FIVE STATES SUMMARY¹
1965-1970
(numbers of persons 5 years old and over)

	Immigrants		Outmigrants	
	Persons	Percent of Total	Persons	Percent of Total
Five States Total	372,548	100.0	566,072	100.0
Sex				
Male	191,930	51.5	290,159	51.3
Female	180,618	48.5	275,913	48.7
Age				
5-9	51,792	13.9	74,733	13.2
10-14	40,874	11.0	60,427	10.7
15-19	37,015	9.9	58,953	10.4
20-24	64,036	17.2	99,146	17.5
25-29	51,274	13.8	79,791	14.1
30-34	34,618	9.3	48,077	8.5
35-39	26,447	7.1	36,856	6.5
40-44	16,926	4.5	28,108	5.0
45-49	13,576	3.6	22,375	4.0
50-54	9,820	2.6	16,170	2.9
55-59	6,868	1.8	11,889	2.1
60-64	5,353	1.4	8,695	1.5
65-69	4,279	1.2	7,277	1.3
70-74	3,497	0.9	5,391	1.0
75+	6,173	1.7	8,184	1.3

¹ Five state region includes Montana, Nebraska, North Dakota, South Dakota, and Wyoming.

Table II-19
MIGRATION¹ BY SEX AND AGE
OLD WEST REGION
1965-1970

	Sex			Age													Median Age		
	Total	Male	Female	5-9	10-14	15-19	20-24	24-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	
Montana																			
Immigrants	75,090	38,755	36,335	11,090	8,633	7,170	10,646	10,799	7,551	5,275	3,547	2,659	2,233	1,463	1,191	842	734	1,257	25.0
Percentage	12.1	12.5	11.7	16.0	11.3	10.3	21.9	26.7	20.2	14.8	9.5	7.1	5.8	4.2	4.2	3.9	4.5	4.3	-
Outmigrants	109,617	56,480	53,137	14,575	11,461	12,092	18,522	15,079	9,093	7,101	5,579	4,617	3,308	2,369	1,797	1,304	1,204	1,516	24.5
Percentage	17.7	18.2	17.1	21.0	15.0	17.5	38.1	37.3	24.3	19.9	14.9	12.4	8.6	6.8	6.4	6.0	7.4	5.2	-
Nebraska																			
Immigrants	134,332	68,019	66,313	17,888	14,867	13,945	23,874	17,772	12,116	9,875	5,858	5,087	3,534	2,389	1,957	1,604	1,334	2,222	24.3
Percentage	10.2	10.6	9.8	12.7	10.1	10.1	22.0	20.8	15.8	13.1	7.5	6.5	4.8	3.4	2.9	2.9	2.8	2.9	-
Outmigrants	175,487	90,632	84,855	22,602	18,413	17,858	29,918	25,109	14,836	11,678	9,158	7,379	5,044	3,673	2,513	1,387	1,870	2,565	24.8
Percentage	13.3	14.2	12.5	16.0	12.5	12.9	27.6	29.4	19.3	15.5	11.8	9.4	6.8	5.2	4.3	4.5	3.9	3.4	-
North Dakota																			
Immigrants	55,768	29,557	26,211	7,727	5,902	4,854	11,638	7,915	5,073	4,014	2,277	1,636	1,075	960	650	586	503	958	24.0
Percentage	10.1	10.6	9.5	12.4	8.6	7.6	25.7	23.3	17.0	13.1	7.1	5.2	3.4	3.1	2.4	2.7	2.9	3.6	-
Outmigrants	106,721	54,832	51,889	14,453	11,327	10,548	19,609	16,119	9,144	6,763	4,825	3,815	2,738	1,993	1,387	1,364	944	1,692	24.3
Percentage	19.3	19.7	18.9	23.2	16.5	16.5	43.3	47.4	30.6	22.1	15.0	12.1	8.8	6.4	5.1	6.4	5.5	6.3	-
South Dakota																			
Immigrants	55,266	28,827	26,439	7,680	5,636	6,008	10,313	7,162	5,049	3,560	2,401	1,891	1,334	984	969	751	557	971	24.0
Percentage	9.3	9.8	8.8	11.6	7.8	8.8	22.9	21.4	16.0	11.2	6.8	5.2	4.0	3.1	3.3	3.0	2.7	3.0	-
Outmigrants	102,097	51,336	50,761	13,246	10,711	10,699	20,275	14,995	8,626	5,939	4,330	3,436	2,862	2,090	1,302	1,165	871	1,550	24.0
Percentage	17.2	17.5	16.9	20.0	14.9	15.6	45.0	44.8	27.3	18.6	12.2	9.5	8.5	6.5	4.5	4.6	4.2	4.8	-
Wyoming																			
Immigrants	52,092	26,772	25,320	7,407	5,836	5,038	7,565	7,626	4,829	3,723	2,833	2,303	1,644	1,072	586	496	369	765	25.1
Percentage	17.7	18.2	17.2	23.0	16.7	15.9	31.7	36.1	26.2	20.5	15.3	12.4	9.3	6.8	4.3	4.9	4.7	6.6	-
Outmigrants	72,150	36,879	35,271	9,857	8,515	7,756	10,822	8,489	6,378	5,375	4,216	3,128	2,218	1,764	1,358	931	502	841	24.6
Percentage	24.5	25.0	24.0	30.6	24.3	24.4	45.3	40.2	34.6	29.6	22.8	16.8	12.6	11.2	9.9	9.3	6.3	7.3	-

¹ Residence in 1965 of immigrants and 1970 of outmigrants. Percentage based on persons reporting state of residence in 1965. Migrants are persons 5 years old and over.

Source: See Table II-15.

Table II-20

NET MIGRATION BY AREA
OLD WEST REGION
1970-1974

	Population		Estimated Natural Increase 1970-1974	Net Migration 1970-1974	Annual Rate of Change 1970-1974 (in percent)	
	1970	1974 ¹			Actual	Natural Increase
Region	3,793,586	3,957,300	111,700	52,014	1.1	0.7
Montana	694,409	734,800	21,800	18,591	1.4	0.8
Northeast	244,346	254,300	8,100	1,854	1.0	1.8
Southeast	215,141	228,600	7,400	6,059	1.5	0.8
West	234,922	251,900	6,300	10,678	1.8	0.6
Nebraska	1,483,493	1,542,800	38,400	20,907	1.0	0.6
Central	314,078	318,800	4,600	122	0.4	0.4
East (Omaha)	551,913	595,100	22,700	20,487	1.9	1.0
Northeast	214,289	214,600	3,400	- 3,089	0.1	0.4
Southeast	308,395	320,900	5,600	6,905	1.0	0.4
West (Panhandle)	94,818	93,400	2,100	- 3,518	-0.4	0.5
North Dakota	617,761	637,400	19,800	- 161	0.8	0.8
Northeast	143,527	152,800	5,900	3,373	3.1	1.0
Northwest	130,352	131,200	5,000	- 4,152	0.2	0.9
Southeast	197,066	200,800	3,700	34	0.5	0.5
Southwest	146,816	152,600	5,200	584	1.0	0.9
South Dakota	665,507	682,900	18,500	- 1,107	0.6	0.7
Northeast	212,959	215,400	3,400	- 959	0.3	0.4
Southeast	244,082	245,400	5,400	- 4,082	0.1	0.5
West	208,466	222,100	9,700	3,934	1.6	1.1
Wyoming	332,416	359,400	13,200	13,784	2.0	1.0
East	249,232	264,900	9,800	5,868	1.5	1.0
Northwest	45,298	47,800	1,400	1,102	1.4	0.8
Southwest	37,886	46,700	2,000	6,814	5.4	1.3

¹

Census provisional estimates as of July 1.

Source: See Table II-1, No. 1), No. 3).

for this age group amounted to 28 percent of the population in this age bracket in 1960. Despite this movement out, the 20-29 age group displayed the highest actual population growth rate (1.6 percent annually) in the Region during the 1960's due to the high birth rates of the 1940's. Declining fertility rates, and movement out of the Region with parents produced the lowest actual growth rate (0.1 percent per year) of persons in the 0-19 age group. Table III-14 also indicates that the highest out-migration rates in the 1960's occurred in Northeast Montana; West Nebraska; Northwest, Southeast and Southwest North Dakota; and Northwest Wyoming. During this period only West Montana and East (Omaha) Nebraska had minor net movements into their areas.

As previously indicated, between just 1965 and 1970, an estimated 566 thousand persons (5 years old and over) moved out of the five States in the Region and 373 thousand moved into these five States; or about 939 thousand persons (5 years old and over) moved into or out of the five States (see Table II-15). Tables II-16 and II-17 indicate the origin and destination of these migrants by state of residence, and Tables II-18 and II-19 summarize age and sex data on these migrants.

Table II-16 shows that a large proportion of the in-migrants to the Region's five States between 1965 and 1970 originated in California (10 percent), Iowa (8 percent), Minnesota (8 percent) and Colorado (6 percent). On the other hand, a high proportion of out-migrants between 1965 and 1970 were destined for California (12 percent), Minnesota (9 percent), Colorado (8 percent) and Washington (8 percent). The pattern of in and out movements between States is generally similar, however, location and probably personal values play a role in these movements. For example, a high proportion of population movements occur between Montana and Washington, Montana and California, Wyoming and Colorado, Nebraska and Iowa, North Dakota and Minnesota, South Dakota and Minnesota, and so on.

Table II-18 indicates that the Region's State in-migrants and out-migrants between 1965 and 1970 were relatively similar with regard to sex and age, about 51 percent of each were males and movements were concentrated in the under 40 age group, with the 20-24 year old segment showing the greatest tendency to migrate. Table II-19 provides further age and sex detail for in-migrants and out-migrants between 1965 and 1970 for each State in the Region. The median age of both in-migrants and out-migrants was about 24 to 25 years old in each State. Migrants as a proportion of 1965 population by age-group in a particular State tended to be extremely high, especially in the 20-24 and 24-29 age groups. Over 40 percent of those in these age groups out-migrated between 1965 and 1970 from North Dakota, South Dakota and Wyoming, with the other States reflecting almost 30 percent or more out-migration in these age groups. On the other hand, the proportion of in-migrants was also large. In Wyoming in-migrants between 1965 and 1970 amounted to over 30 percent of the 1965 population in the 20-24 and 24-29 age groups, and in the other States the proportion was over 20 percent.

While the historical trend in recent decades was out-migration from the Region, data for the 1970 to 1974 period suggests an almost complete reversal of such movement. This trend appears to be consistent with changes in recent employment trends (see Chapter VIII). Table II-20 indicates a net in-migration to the Region of about 52 thousand persons between 1970 and 1974, with Montana, Nebraska and Wyoming showing net in-migrations, and North Dakota and South Dakota reflecting negligible net out-migration. Regional employment increases (see Chapter VIII, Table VIII-3) due to expanding economic activities in mining and manufacturing along with almost no change in agricultural employment (as opposed to long-term continuous declines) was largely responsible for this abrupt turnaround in migration trends. This again underscores the mobility and determination of the regional population to seek and obtain employment in the Region or elsewhere in the nation.

CHAPTER III

ECONOMIC AND RELATED

CHARACTERISTICS OF THE POPULATION

3.1 Summary

From a review of the economic and related characteristics of the Region's population, it is apparent that low per capita and family income levels have historically been common to many parts of the Region. This represents a dominant economic problem in many areas of the Region. While the Region is generally characterized (for a variety of reasons) by relatively high employment levels, the low levels of earnings obtained from this employment (see Chapter VIII) have resulted in low family and per capita incomes. From a poverty standpoint, though, the Region is not much worse off, on average, than the nation as a whole; but while the proportion of people below the poverty level is similar, those in the Region are relatively less poor than those elsewhere. However, the very greatest employment, income and poverty problems in the Region exist among the American Indian inhabitants.

The occupational characteristics of the Region reflect a relatively large proportion of farm-oriented skills. Even so, the Region still maintains a substantial portion of professional and non-farm skilled occupations. In addition, educational attainment levels are high in the Region, and every State in the Region has a higher proportion of persons completing at least one year of college than in the nation. Also, while Indian educational attainment levels are relatively low in comparison to the Region or nation, it is apparent that the Indian people have not been receiving economic rewards in proportion to educational gains similar to those being obtained in non-Indian society.

The following summarizes the specific data results:

- 1) Employment participation ratios were higher in the Region as compared to the nation in 1950, 1960 and 1970. In 1970, the Region ratio was 9 percent higher than the national ratio. Only one sub-State area, West Montana, was below (by 7 percent) the national employment participation ratio in 1970.
- 2) For the period 1970-1974, the average unemployment rate for the Region was 4.2 percent and for the nation it was 5.4 percent. This amounts to an unemployment rate for the Region about 20 percent below the national rate. However, during this period Montana had unemployment rates consistently higher, averaging 6.2 percent, than the nation's.
- 3) Over the period 1950-1974, total personal income (in current dollars) grew at an annual rate of 6.0 percent in the Region and 7.0 percent in the nation. Only in the recent 1970-1974 period was the total annual personal income growth rate higher for the Region in comparison with the nation (11.0 percent versus 9.4 percent, respectively.)

- 4) Per capita personal income (in current dollars) in the Region was \$1,450 (97 percent of the national average) in 1950 compared to \$5,170 (95 percent of the national average) in 1974. This amounts to an annual growth rate of 5.4 percent for the Region and compares with a national increase of 5.5 percent per year during the 1950-1974 period. However, both of these years (i.e., 1950 and 1974) are atypical in recent history, partly due to higher than usual agricultural income. In 1959 and 1970 per capita incomes of the Region lagged those of the nation by 11-15 percent; and South Dakota showed the greatest disparity, lagging the national average by 20-30 percent in these years.
- 5) In 1969, mean family income was \$9,500 in the Region versus \$10,900 in the nation. While mean family income of the Region was 13 percent lower than that for the nation, among the States the range was from 20 percent below the national level in South Dakota to 7 percent below the national level in Nebraska.
- 6) In 1969, 14.5 percent of the Region's population were classified in the poverty category as compared with 13.3 percent of all persons in the nation. The least proportion of poverty among all persons occurred in Wyoming, with 11.7 percent; and the greatest proportion occurred in South Dakota, with 18.7 percent.
- 7) In 1970, about 15 percent of the Region's workers were classified as farmers, farm managers or farm laborers, this compares with 3 percent for the nation. On the other hand, the proportion of professional-technical and craftsmen-foremen in the Region show only minor (1-2 percentage points) lags compared with the nation; and the percentage of managers-officials-proprietors was higher in the Region than in the nation. However, there were significantly lower proportions of the semi-skilled operatives-transport occupations in the Region (10.5 percent) as compared with the nation (16.3 percent).
- 8) Educational attainment among those 25 years old and over had reached 11.2 years in 1960 and 12.2 years in 1970 for those in the Region, compared with 10.5 years in 1960 and 12.1 years in 1970 for those in the nation.
- 9) Among those people living in the Region, American Indians reflect some of the very greatest economic problems:
 - Employment participation ratios were 40 percent lower than the nation and 45 percent lower than the Region in 1970.

- The unemployment rate was a very conservatively estimated 19 percent in 1970, or 5 times the regional rate.
- The mean family income of \$5,600 in 1969 was about one-half the national average.
- Per capita income in 1969 was estimated at \$1,000, or only about 25 percent of the national average.
- Over 46 percent were classified in the poverty group in 1969.
- The largest proportion of those employed were in low paying laborer and service jobs in 1970.
- Median years of educational attainment in 1970 amounted to 9.5, or about 22 percent lower than the Region level.

3.2 Employment Rates and Trends

Table III-1 summarizes employment participation ratios historically in the Region and the several States.¹ This table indicates higher employment participation ratios for the Region as compared to the nation in 1950, 1960 and 1970. In 1970, the Region ratio (at 0.871) was 9 percent higher than the national ratio (at 0.798). In 1970, all States in the Region had higher employment participation ratios than the nation, some of them substantially higher, and in the other years Nebraska and South Dakota had higher ratios than the nation while the other States were somewhat below the national average. Table III-2 shows that for 1970 only one sub-State area, West Montana, was below the national employment participation ratio (about 7 percent lower), while East (Omaha) Nebraska and Northwest Wyoming had the highest ratios, both being about 17 percent higher than the national average. However, Table III-2 reflects a major employment problem among Indian people in the Region. The 1970 employment participation ratio for Indians (taken from the Census) was only about 0.48, or a substantial 40 percent lower than the nation and 45 percent lower than the Region. This begins to provide an indication of the major economic problems facing Indian people.

¹ The employment participation ratio as used in this review is defined as the ratio of total employment to the population in the 20 through 64 year old age group. This statistic has several advantages over the usual participation ratio definition which focuses on the number of persons in the labor force (including unemployed) instead of those just employed. Labor force estimates hide a potentially significant labor reservoir because they exclude the unemployed not seeking jobs. Therefore, an "employment participation ratio" which considers only those persons employed is generally better than other statistics as an indicator of how extensively human resources are utilized in an economy.

Table III 1
EMPLOYMENT PARTICIPATION RATIOS¹
OLD WEST REGION AND NATION
1950, 1960 AND 1970

	1950	1960	1970
Region			
Employment, in thousands	1,371.6	1,415.7 ²	1,630.4
Population, age 20-64, in thousands	1,927.9	1,843.3	1,872.3
Employment Participation Ratio	0.711	0.768	0.871
Montana			
Employment, in thousands	222.0	235.4 ²	277.5
Population, age 20-64, in thousands	329.4	331.4	347.4
Employment Participation Ratio	0.674	0.710	0.799
Nebraska			
Employment, in thousands	553.2	573.2 ²	666.4
Population, age 20-64, in thousands	749.7	711.1	736.4
Employment Participation Ratio	0.738	0.806	0.905
North Dakota			
Employment, in thousands	225.1	226.3 ²	257.2
Population, age 20-64, in thousands	328.1	304.2	300.7
Employment Participation Ratio	0.686	0.744	0.855
South Dakota			
Employment, in thousands	260.2	258.2 ²	282.1
Population, age 20-64, in thousands	355.9	328.5	317.6
Employment Participation Ratio	0.731	0.786	0.888
Wyoming			
Employment, in thousands	111.1	122.6 ²	147.2
Population, age 20-64, in thousands	165.3	168.2	170.2
Employment Participation Ratio	0.672	0.729	0.865
United States			
Employment, in thousands ³	62,570.0	71,292.0	85,815.0
Population, age 20-64 in thousands	88,202.0	94,444.0	107,543.0
Employment Participation Ratio	0.709	0.755	0.798

¹ Employment estimates as presented here are consistent with the "work force" definition. Total number of jobs are counted using this definition.

² Employment as of 1959.

³ Work force employment for the nation was estimated by adding dual job holders to labor force employment.

Source: See Tables in Chapter VIII, and population from April 1 Census of year shown. Also, from Manpower Administration, Manpower Report of the President: 1973, U.S. Department of Labor, U.S. Government Printing Office, Washington, D.C., 1973, Tables A-1 and B-13.

Table III-2

EMPLOYMENT PARTICIPATION RATIOS
OLD WEST REGION
STATES, SUB-STATE AREAS AND
AMERICAN INDIAN GROUP
1970

Area	Employment ¹ (in thousands)	Population Age 20-64 (in thousands)	Employment Participation Ratio
Montana			0.799
Northeast	103.2	120.8	0.854
Southeast	87.3	108.8	0.802
West	87.0	117.8	0.739
Nebraska			0.905
Central	135.8	152.8	0.888
East (Omaha)	260.7	278.3	0.937
Northeast	88.2	100.3	0.879
Southeast	140.9	158.2	0.891
West (Panhandle)	40.8	46.8	0.872
North Dakota			0.855
Northeast	60.9	69.7	0.874
Northwest	54.8	64.8	0.855
Southeast	84.3	96.2	0.876
Southwest	57.2	70.2	0.815
South Dakota			0.888
Northeast	90.4	100.5	0.900
Southeast	104.8	117.1	0.895
West	86.9	100.0	0.869
Wyoming			0.865
East	108.7	128.5	0.846
Northwest	21.3	22.7	0.938
Southwest	17.2	19.1	0.901
American Indians, all areas	15.2	31.9	0.476

¹ "Work force" definition.

Source: See Tables in Chapter VIII; population from Census reports as of July 1 of 1970; and U.S. Bureau of Census, Census of Population: 1970, Final Report PC(2)-1F American Indians, U.S. Government Printing Office, Washington, D.C., 1973.

The generally higher employment participation levels in the Region can be partly explained by several factors. The rural character of the Region, with a large agricultural base, allows individuals to move relatively freely into and out of employment on the family (or corporate) farm.¹ While such employment does not generally result in high levels of earnings, it does provide a hedge against poverty. In addition, the Region contains relatively more employed persons over 65 and under 20 years old than the nation, and there are relatively more persons in the Region holding more than one job. Earnings per job are comparatively low in the Region, but multiple jobs and working at a younger or older age helps supplement family income.

Low unemployment rates are consistent with high employment participation ratios. For the years (1970-1974) where comparable data exist, Table III-3 indicates that the Region has always maintained unemployment rates lower than those in the nation. For the five-year period 1970-1974, the average unemployment rate for the Region was 4.2 percent versus 5.4 percent for the nation. The regional unemployment rate during this period was more than 20 percent below the national average. Again, the rural agricultural base of the Region probably allowed absorption of many who would otherwise be unemployed. However, Montana (probably West Montana in particular) during this period had unemployment rates that were consistently higher (averaging 6.2 percent over the 1970-1974 period) than the national average. Montana has not been as large an agricultural producer as most of the other States in the Region, and absorption capabilities are limited. An overwhelming unemployment problem, though, is reflected among Indian people. Census data indicate that the unemployment rate among Indians was over 19 percent (about 5 times the regional rate) in 1970.

Indian people, since the unemployed not seeking work are excluded from the unemployment rate statistic.

3.3 Income Levels and Trends

This section provides a review of personal income and poverty levels and trends in the Region. Table III-4 shows total personal income levels (in current and constant 1967 dollars) in all parts of the Region and in the nation for 1950, 1959, 1970 and 1974, along with annual rates of personal income change (in current dollars) for these areas over the time periods shown. The data indicate that while regional personal income increased from about \$5.05 billion to \$20.48 billion (in current dollars) between 1950 and 1974, the regional annual rate of growth

¹ While States tend frequently to over estimate agricultural employment, an effort was made to correct this problem through use of Census reports and data from the Bureau of Economic Analysis.

Table III-3
CIVILIAN LABOR FORCE
UNEMPLOYMENT RATES
OLD WEST REGION AND NATION
1970-1974

Area	Annual Average Unemployment (in percent)				
	1970	1971	1972	1973	1974
Region	3.9 ¹	4.5	4.2	4.1	4.4
Montana	5.5	6.3	6.2	6.3	6.7
Nebraska	3.1	3.6	3.4	3.3	3.8
North Dakota	4.6	5.3	4.9	5.1	3.0
South Dakota	3.3	3.7	3.7	3.3	3.5
Wyoming	4.5	4.5	4.0	3.5	3.6
United States	4.9	5.9	5.6	4.9	5.6

¹ Unemployment for American Indians throughout the Region estimated at 19.3 percent from U.S. Bureau of Census, Census of Population, 1970.

Note: Estimates based on labor force (i.e., place of residence) definition for non-institutional population 16 years old and over. Data obtained from National Household Current Population Survey.

Source: Manpower Administration, Manpower Report of the President: 1975, U.S. Department of Labor, U.S. Government Printing Office, Washington, D.C., 1975.

Table III-4

PERSONAL INCOME
OLD WEST REGION AND NATION
1950, 1959, 1970 AND 1974

Area	Constant 1967 Dollars (in millions)				Current Dollars (in millions)				Current Dollars Annual Rate of Change (in percent)			
	1950	1959	1970	1974	1950	1959	1970	1974	1950-1959	1959-1970	1970-1974	1950-1974
Region	6,973.5	7,694.5	11,922.3	--	5,053.3	6,813.4	13,475.2	20,478	3.4	6.4	11.0	6.0
Montana	1,327.7	1,519.2	2,152.4	--	962.1	1,345.2	2,432.7	3,643	3.8	5.5	10.6	5.7
Northeast	538.8	572.0	826.5	--	390.4	506.5	934.2	--	2.9	5.7	--	--
Southeast	383.7	476.7	668.2	--	278.0	422.1	755.2	--	4.7	5.4	--	--
West	405.2	470.4	657.7	--	293.6	416.5	743.4	--	4.0	5.4	--	--
Nebraska	2,760.3	3,155.1	3,062.5	--	2,000.2	2,793.8	5,721.9	8,144	3.8	6.7	9.2	6.0
Central	643.0	644.2	1,043.0	--	465.9	570.4	1,178.9	--	2.3	6.6	--	--
East (Omaha)	900.5	1,237.5	2,069.9	--	652.5	1,095.8	2,339.5	--	5.9	7.1	--	--
Northeast	420.7	381.9	609.6	--	304.9	338.2	689.0	--	1.2	6.7	--	--
Southeast	543.4	668.1	1,065.8	--	393.8	591.6	1,204.6	--	4.6	6.7	--	--
West (Parramiddle)	252.6	223.5	274.2	--	183.0	137.9	309.9	--	0.9	4.2	--	--
North Dakota	1,090.7	1,093.3	1,729.3	--	790.4	968.1	1,954.5	3,556	2.3	6.6	16.1	6.5
Northeast	236.4	250.3	412.1	--	171.3	221.6	465.8	--	2.9	7.0	--	--
Northwest	235.1	235.2	341.8	--	170.4	208.3	386.3	--	2.3	5.8	--	--
Southeast	381.1	387.3	595.8	--	276.2	342.9	673.4	--	2.4	6.3	--	--
Southwest	238.2	220.5	379.5	--	172.6	195.3	428.9	--	1.4	7.4	--	--
South Dakota	1,124.8	1,110.2	1,851.8	--	815.1	983.1	2,093.0	3,195	2.1	7.1	11.2	5.9
Northeast	382.3	318.1	572.8	--	277.0	281.7	647.4	--	0.2	7.9	--	--
Southeast	405.9	377.3	703.2	--	294.1	334.1	794.8	--	1.4	8.2	--	--
West	336.6	414.8	575.7	--	243.9	367.3	650.7	--	4.7	5.3	--	--
Wyoming	669.9	816.8	1,126.3	--	485.4	723.3	1,273.0	1,940	4.5	5.3	11.1	6.0
East	499.4	623.2	835.2	--	361.9	551.8	944.0	--	4.8	5.0	--	--
Northwest	86.5	108.3	158.2	--	62.7	95.9	178.3	--	4.8	5.8	--	--
Southwest	84.1	85.3	132.9	--	60.9	75.5	150.2	--	2.4	6.5	--	--
United States	312,147.6	432,349.2	710,923.4	--	226,197.2	382,840.3	803,521.2	1,151,622	6.0	7.0	9.4	7.0

Source: Data in constant 1967 dollars from a Special Computer Run and other unpublished data provided by Bureau of Economic Analysis, Department of Commerce, along with yearly implicit price inflators and deflators for personal consumption expenditures to determine current dollar estimates; and Bureau of Economic Analysis, Survey of Current Business, U.S. Department of Commerce, August, 1975.

lagged behind the national growth rate during all periods shown except 1970-1974. For the entire 1950 through 1974 period, the Region's annual personal income (in current dollars) growth rate was 6.0 percent versus 7.0 percent for the nation. However, in the recent 1970 through 1974 period this growth rate was 11.0 percent per year for the Region as opposed to 9.4 percent for the nation. This is consistent with similar recent changes in regional employment and population trends, and also reflects higher prices and earnings attained in the agricultural sector during the last several years.

Table III-4 also reflects important State and sub-State variations from the regional personal income trends. While all parts of the Region were below the national annual personal income growth rate turning the 1950's, parts of South Dakota (Northeast and Southeast), North Dakota (Northeast and Southwest) and the Omaha (East) Nebraska area¹ were equal to or above the national annual personal income growth rate during the 1960's (i.e., 1959-1970); and since 1970 North Dakota, Wyoming, and Montana have achieved personal income growth rates above the national average.

With regard to per capita personal income (in current dollars), Table III-5 indicates that between 1950 and 1974 the regional change was from about \$1,450 (97 percent of the national average) to approximately \$5,170 (almost 95 percent of the national average) or about 5.4 percent per year, compared with a larger national annual growth rate of 5.5 percent per year. In 1959 and 1970 per capita incomes of the region lagged those of the nation by between 11 and 15 percent. The 1974 data reflect recent improvements in some farm prices and revenues. Among the States, Montana and Nebraska data show a trend similar to the regional per capita income lag in comparison with the nation, although both States had per capita incomes above the national level in 1950. Wyoming's per capita income was only slightly lower than the nation's in 1970 and 1974; and North Dakota made extensive gains in per capita income levels between 1970 and 1974, going from 80 percent to 102 percent of the national average. North Dakota was the major beneficiary in the Region of higher than normal wheat prices during the early 1970's and it is not assured that such levels will continue into future years. Among the States in the Region, South Dakota lagged the most in per capita income, being about 15 to 30 percent below the national average in 1959, 1970 and 1974. It should also be noted that South Dakota and Montana contain the largest numbers of Indians, and Indian people have some of the very lowest income levels in the Region (as will be shown later).

Table III-6 provides further detail on 1950, 1959 and 1970 per capita personal income levels and trends in sub-State areas. This table shows a substantial variation between levels of per capita income among some of the sub-State areas as compared to State averages. Northeast Montana,

¹ East Nebraska, or the Omaha area, has consistently (from 1950 - 1970) maintained an annual personal income growth rate similar to the national average.

Table III-5

PER CAPITA PERSONAL INCOME
OLD WEST REGION AND NATION
1950, 1959, 1970 AND 1974
(in current dollars)

Area	1950	1959	1970	1974	Annual Rate of Change (in percent)		
					1950-1959	1959-1970	1970-1974
Region (Region as Percent of Nation)	1,450 97.3	1,860 86.1	3,540 89.8	5,170 94.9	2.8	6.0	10.0
Montana (State as Percent of Nation)	1,620 108.7	2,010 93.1	3,490 88.6	4,960 91.0	2.4	5.2	9.2
Nebraska (State as Percent of Nation)	1,510 101.3	2,000 92.6	3,840 97.5	5,280 96.8	3.2	6.1	8.3
North Dakota (State as Percent of Nation)	1,280 85.9	1,570 72.7	3,160 80.2	5,580 102.3	2.3	6.6	15.3
South Dakota (State as Percent of Nation)	1,240 83.2	1,470 68.1	3,140 79.7	4,680 85.8	1.9	7.1	10.5
Wyoming (State as Percent of Nation)	1,670 112.1	2,260 104.6	3,810 96.7	5,400 99.0	3.4	4.9	9.1
United States	1,490	2,160	3,940	5,450	4.2	5.6	8.4
							5.5

Source: Table III-4 and U.S. Bureau of Census population estimates as of July 1 of year shown.

Table III-6

PER CAPITA PERSONAL INCOME
OLD WEST REGION, STATES AND SUB-STATE AREAS
1950, 1959 AND 1970
(in current dollars)

State and Sub-State Area	Sub-State as Percent of State		Sub-State as Percent of State		Sub-State as Percent of State		Annual Rate of Change (in percent)	
	1950	1959	1959	1970	1959	1970	1950-1959	1950-1970
Montana	1,630	2,010		3,500			2.4	5.2
Northeast	1,840	2,040	101.5		109.1		1.2	5.9
Southeast	1,540	2,040	101.5	3,510	100.3		3.1	5.1
West	1,480	1,970	98.0	3,160	90.3		3.2	4.4
Nebraska	1,510	2,000		3,860			3.2	6.2
Central	1,430	1,820	91.0	3,750	97.2		2.7	6.8
East (Omaha)	1,700	2,370	118.5	4,240	109.8		3.8	5.4
Northeast	1,330	1,530	76.5	3,220	83.4		1.6	7.0
Southeast	1,380	1,960	98.0	3,910	101.3		3.9	6.5
West (Panhandle)	1,790	1,900	95.0	3,270	84.7		0.6	5.1
North Dakota	1,280	1,570		3,160			2.3	6.6
Northeast	1,220	1,570	100.0	3,250	102.8		2.9	6.8
Northwest	1,440	1,590	101.3	2,960	93.7		1.1	5.8
Southeast	1,340	1,660	105.7	3,420	108.2		2.4	6.8
Southwest	1,120	1,280	81.5	2,920	92.4		1.5	7.8
South Dakota	1,250	1,470		3,140			1.8	7.1
Northeast	1,180	1,240	84.4	3,040	96.8		0.5	8.5
Southeast	1,250	1,380	93.9	3,260	103.8		1.1	8.1
West	1,340	1,760	119.7	3,120	99.4		3.1	5.3
Wyoming	1,670	2,260		3,830			3.4	4.9
East	1,760	2,290	101.3	3,790	99.0		3.0	4.7
Northwest	1,430	2,030	89.8	3,950	103.1		4.0	6.2
Southwest	1,490	1,960	86.7	3,960	103.4		3.1	6.6

Source: Table III-4 and Table II-1. Population data for 1959 sub-State areas interpolated from 1950 and 1960 Census estimates. Note that population data used for calculating statistics shown are from April Census estimates.

East (Omaha) Nebraska, and Northeast North Dakota all generally reflect substantially higher per capita incomes than at the overall State level. On the other hand, West Montana, and Northeast and West Nebraska all had substantially lower per capita incomes in 1970 than at the overall State level.

Family income and poverty status levels in the Region are shown for 1969 in Table III-7. In 1969, the Region's mean family income was about \$9,500 versus about \$10,900 for the nation. This 13 percent lag was similar to the per capita income lag as shown in Table III-5 since average family size in the Region and nation were equivalent in 1969 (see Table III-7). The proportion of families making \$10,000 or more in 1969 was 47 percent in the nation but only 37 percent in the Region. Among the States, 1969 mean family income ranged from about \$8,800 (20 percent below the national average) in South Dakota to about \$10,100 (7 percent below the national average) in Nebraska. Data on poverty status indicates that in 1969 about 14.5 percent of the Region's population was classified in the poverty group compared to 13.3 percent in the nation. The least amount of poverty was achieved in Wyoming (11.7 percent of all persons so classified) and the greatest amount of poverty occurred in South Dakota (18.7 percent of all persons). While the Region was characterized in 1969 by slightly more poverty on average than the nation, the degree of poverty was less in the Region. For example, at the regional level the mean income deficit of poverty families was more than 10 percent below the national level (about \$1,380 for the Region versus \$1,550 for the nation) and among unrelated individuals it was 11 percent lower (about \$880 for the Region and \$950 for the nation). In all States of the Region the mean income deficit among families and unrelated individuals was lower than that for the nation.

Table III-8 is similar to Table III-7 except that income and poverty data are shown for only American Indians in the Region. These statistics again underscore major economic disparities existing in Indian areas. In 1969, the mean income of American Indian families in the Region was just over \$5,600 or about one-half the national average. The average Indian family size was estimated at about 5.0 persons versus about 3.6 persons per family on average in the nation. Using data in Table III-8, it is estimated that in 1969 the per capita income of Indian people in the Region was about \$1,000, or only about one-fourth of the average national per capita income in the nation. In 1970, the Region's per capita personal income lagged the nation's by about \$400. This represented a total personal income deficit for the Region of just over \$1.5 billion. Assuming Indian per capita incomes of about \$1,000, the total personal income deficit among just Indians would amount to over \$0.25 billion. While representing only about 2 percent of the Region's population they account for almost 17 percent of the Region's income deficit. This grim statistic is also reflected in the poverty data shown in Table III-8. In 1969 more than 46 percent of the Region's Indian population (versus 14.5 percent for the Region) was classified as being in the poverty group, and the mean income deficits were about 40 percent higher among Indian poverty families than among the average poverty family in the Region.

Table III-7

FAMILY INCOME AND POVERTY STATUS
OLD WEST REGION AND NATION
1969

	Region	Montana	Nebraska	North Dakota	South Dakota	Wyoming	United States
Income of Families							
All Families	940,851	171,812	374,160	148,235	161,941	84,703	51,168,599
0 - \$ 999	2.40%	2.27%	2.18%	2.39%	3.22%	2.12%	2.50%
\$ 1,000-\$ 1,999	3.77%	3.21%	3.64%	4.10%	4.90%	2.79%	3.39%
\$ 2,000-\$ 2,999	5.44%	5.03%	5.15%	5.56%	6.87%	4.54%	4.42%
\$ 3,000-\$ 3,999	6.11%	5.52%	5.76%	6.89%	7.34%	5.11%	4.89%
\$ 4,000-\$ 4,999	6.49%	6.01%	6.03%	7.42%	7.64%	5.70%	5.09%
\$ 5,000-\$ 5,999	7.58%	7.04%	7.35%	8.48%	8.36%	6.58%	5.74%
\$ 6,000-\$ 6,999	7.78%	8.09%	7.82%	8.43%	7.86%	7.18%	6.15%
\$ 7,000-\$ 7,999	7.95%	8.45%	7.82%	8.04%	7.72%	7.81%	6.75%
\$ 8,000-\$ 9,999	15.12%	15.92%	15.21%	14.45%	14.26%	15.90%	13.88%
\$10,000-\$14,999	23.49%	24.77%	24.41%	21.42%	20.27%	26.64%	26.63%
\$15,000-\$24,999	10.80%	10.73%	11.72%	9.87%	8.78%	12.40%	15.99%
\$25,000 or more	3.06%	2.95%	3.22%	2.97%	2.78%	3.25%	4.58%
Median Income	\$ 8,327	\$ 8,512	\$ 8,564	\$ 7,838	\$ 7,494	\$ 8,943	\$ 9,596
Mean Income	\$ 9,516	\$ 9,662	\$ 9,792	\$ 9,086	\$ 8,795	\$ 10,127	\$ 10,930
Average Family Size	3.57	3.60	3.50	3.69	3.63	3.53	3.57
Unrelated Individuals							
Number	370,415	67,836	148,737	60,150	64,789	28,903	18,696,505
Mean Income	\$ 3,109	\$ 3,244	\$ 3,221	\$ 2,904	\$ 2,666	\$ 3,640	----
Income Below Poverty Level¹							
Number of Persons	530,401	91,669	188,235	93,086	119,543	37,868	27,057,482
Percent of All Persons	14.5	13.6	13.1	15.7	18.7	11.7	13.3
Families							
Number	105,749	17,821	37,868	18,332	23,887	7,841	5,482,886
Percent of all Families	11.2	10.4	10.1	12.4	14.8	9.3	10.7
Mean Size of Families	3.81	3.82	3.61	4.04	3.97	3.68	3.85
Mean Income Deficit	\$ 1,383	\$ 1,436	\$ 1,328	\$ 1,364	\$ 1,446	\$ 1,381	\$ 1,546
Unrelated Individuals 14+							
Number	127,730	23,675	51,357	19,056	24,660	8,982	5,953,410
Percent of all 14+	41.4	40.4	40.5	41.2	47.3	36.7	37.1
Mean Income Deficit	\$ 882	\$ 861	\$ 883	\$ 904	\$ 888	\$ 873	\$ 953

¹ Excludes inmates of institutions, members of the armed forces, college students in dormitories and unrelated individuals under 14 years.

Source: 1) U.S. Bureau of Census, Census of Population: 1970, Vol. 1, Characteristics of the Population, Part 28, Part 29, Part 36, Part 43 and Part 52, U.S. Government Printing Office, Washington, D.C., 1973.

2) U.S. Bureau of the Census, Statistical Abstract of the U.S. 1974 (95th Ed.) U.S. Department of Commerce, Washington, D.C., 1974.

Table III-8

AMERICAN INDIANS
INCOME AND POVERTY STATUS
OLD WEST REGION
1969

	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Income of Families												
All Families	13,912	100.00	4,631	100.00	1,036	100.00	2,216	100.00	5,178	100.00	851	100.00
Less than \$1,000	1,180	8.48	285	6.15	62	5.98	178	8.03	573	11.07	82	9.64
\$1,000-\$1,999	1,644	11.82	492	10.62	91	8.78	230	10.38	726	14.02	105	12.34
\$2,000-\$2,999	1,761	12.66	666	14.38	83	8.01	274	12.36	690	13.33	48	5.64
\$3,000-\$3,999	1,763	12.67	468	10.11	117	11.29	318	14.35	755	14.58	105	12.34
\$4,000-\$4,999	1,435	10.31	485	10.47	39	3.59	247	11.15	546	10.54	68	7.99
\$5,000-\$5,999	1,124	8.08	407	8.79	101	9.75	175	7.90	381	7.36	60	7.05
\$6,000-\$6,999	986	7.09	313	6.76	105	10.14	172	7.76	349	6.74	47	5.52
\$7,000-\$7,999	875	6.29	369	7.97	100	9.65	107	4.83	236	4.56	63	7.40
\$8,000-\$8,999	668	4.80	261	5.64	34	3.28	160	7.22	158	3.05	55	6.46
\$9,000-\$9,999	489	3.51	164	3.54	84	8.11	70	3.16	134	2.59	37	4.35
\$10,000-\$11,999	778	5.59	316	6.82	82	7.92	88	3.97	230	4.44	62	7.29
\$12,000-\$14,999	644	4.63	229	4.94	43	4.15	122	5.51	193	3.73	57	6.70
\$15,000-\$24,999	468	3.36	137	2.96	40	3.86	75	3.38	161	3.11	55	6.46
\$25,000 or more	97	0.70	39	0.84	5	0.48	---	---	46	0.89	7	0.82
Median Income	\$4,424		\$4,834		\$5,752		\$4,437		\$3,795		\$5,292	
Mean Income	\$5,645		\$5,943		\$6,233		\$5,429		\$5,200		\$6,584	
Average Family Size	5.02		4.92		5.02		5.15		5.11		4.62	
Unrelated Individuals												
14 years and older	4,145		1,359		368		723		1,438		257	
Mean Income	\$1,908		\$2,130		\$2,146		\$1,602		\$1,622		\$2,847	
Income Below Poverty Level												
Number of Persons	38,170		11,376		2,418		6,383		16,268		1,725	
Percent of All Persons	46.3		43.1		36.5		47.1		52.4		36.6	
Families												
Number	6,561		1,967		362		1,077		2,839		316	
Percent of all Families	47.2		42.5		34.9		48.6		54.8		37.1	
Mean Size of Families	5.25		5.21		5.68		5.18		5.31		4.68	
Mean Income Deficit	\$1,948		\$1,839		\$2,101		\$1,744		\$2,075		\$2,008	
Unrelated Individuals 14+												
Number of Persons	2,529		777		189		469		954		140	
Percent of All 14+	61.0		57.2		51.4		64.9		66.3		54.5	
Mean Income Deficit	\$1,179		\$1,061		\$1,186		\$1,277		\$1,237		\$1,096	

Source: U.S. Bureau of Census, Census of Population: 1970, Final Report PC(2)-1F American Indians, U.S. Government Printing Office, Washington, D.C., 1973; and unpublished data obtained from special computer run on American Indians by the U.S. Bureau of Census.

3.4 Skill and Occupational Characteristics

Occupational skill classifications of Old West Region inhabitants (by State in 1960 and 1970, by sub-State area in 1970, and for Indians in 1970) are shown in Tables III-9 through III-11. As would be surmised, the Region has an inordinate proportion of farmers, farm managers and farm laborers among those employed. In 1960 (see Table III-9), about 23 percent of those employed in the Region were classified in these occupations versus about 6 percent in the nation. By 1970, the proportion in these occupations declined to 15 percent in the Region versus 3 percent for the nation. Given this variation, the Region still did not perform too badly with regard to the proportion of other skilled occupations among the employed.

The proportion of professional-technical and craftsmen-foremen shows some lag in comparison with the nation, but not by an overwhelming margin (about 1 to 2 percentage points in 1970). The Region reflects a higher proportion of managers-officials-proprietors than the nation, but this is probably due to a larger percentage of small retail and service firms in the Region. On the other hand, compared to the nation, the Region in both 1960 and 1970 had relatively fewer workers in the semi-skilled machine operating occupations (though some increases occurred between 1960 and 1970).

Within the various States (see Table III-9), farm oriented occupations are most visible in North Dakota and South Dakota (accounting for over 30 percent of the worker occupations in 1960 and over 20 percent in 1970); whereas the proportion of professional-technical, managers-officials-proprietors, and craftsmen-foremen occupations are higher in Wyoming, all being above the national percentages in 1960 and 1970.

Turning to sub-State areas, Table III-10 shows that major variations in 1970 occupational skill classifications appear in West Montana, and East and Southeast Nebraska. West Montana in 1970 had relatively more workers classified in the craftsmen-foremen and operatives-transport occupations (about 30 percent) in comparison with the rest of the State (about 20 percent). On the other hand, the proportion of farm occupations was much lower in West Montana (about 6 percent) compared with the rest of the State (about 15 percent). The greater proportion of manufacturing and mining activities and lower proportion of agricultural activities in West Montana accounted for these variations. In Nebraska, the more urbanized East (Omaha) and Southeast (Lincoln) areas had proportionally more professional-technical and clerical workers and fewer farm occupations than the other areas of the State in 1970.

Table III-11 provides 1970 data on the occupations of Indians in four of the five Old West Region States. In general, this data reflects the large proportion of Indians working in relatively low paying laborer and service occupations.

Table III-9

OCCUPATIONAL SKILL CLASSIFICATIONS
OLD WEST REGION AND NATION
1960 AND 1970
(percentage distribution)

Skill Classifications ¹	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		United States	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
Professional- Technical	9.88	12.72	10.77	13.74	9.56	12.24	9.27	12.67	9.33	11.99	11.75	14.50	10.81	14.01
Managers-Officials- Proprietors	9.71	9.16	10.44	9.80	9.40	8.66	9.58	9.49	9.11	8.71	11.07	10.52	8.70	7.94
Sales Workers	6.41	6.32	6.55	6.33	6.80	6.63	6.00	6.19	6.14	6.23	5.68	5.30	7.17	6.61
Clerical	11.18	13.69	11.41	13.79	12.49	14.72	9.71	12.36	9.18	12.12	11.64	13.95	14.12	16.86
Craftsmen-Foremen	11.06	10.72	12.69	12.01	11.10	10.77	8.94	9.56	9.30	9.08	15.00	13.05	13.84	12.93
Operatives- Transport	10.01	10.48	10.75	10.35	11.08	12.00	7.15	7.55	8.54	8.93	11.88	11.51	17.56	16.28
Non-Farm Laborers	4.20	3.76	5.13	4.49	4.29	3.97	3.09	2.80	3.80	3.13	4.80	4.14	5.14	4.16
Farmers- Farm Managers	17.28	11.07	10.92	7.28	16.36	9.90	25.14	16.43	23.24	16.17	7.81	5.14	3.38	1.74
Farm Laborers	5.49	3.44	5.44	3.88	4.34	2.66	7.20	3.85	6.75	4.49	5.04	3.50	2.30	1.19
Service	9.61	12.58	10.65	12.81	9.41	12.19	9.43	13.34	8.91	12.76	10.18	12.31	8.90	10.43
Private Household	2.37	1.53	2.28	1.34	2.22	1.41	2.41	1.70	2.68	1.88	2.46	1.50	2.66	1.41
Not Reported	2.80	4.53	2.96	4.18	2.95	4.84	2.08	4.05	3.01	4.51	2.70	4.59	4.93	6.24
Total ²	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

¹ For employed persons 14 years old and over.

² Percent may not add due to rounding.

Source: See Table II-1, No. 1)

Table III-10

OCCUPATIONAL SKILL CLASSIFICATIONS
OLD WEST REGION
SUB-STATE AREAS
1970
(percentage distribution)

Skill Classifications ¹	Montana			Nebraska			North Dakota			South Dakota			Wyoming		
	N.E.	S.E.	West	Cent.	East	N.E.	S.E.	West	N.E.	S.E.	West	N.E.	S.E.	West	N.E.
Professional- Technical	14.43	13.97	14.64	10.58	14.57	9.47	14.65	11.47	14.57	12.18	13.14	13.20	11.85	12.36	14.17
Managers-Officials- Proprietors	10.48	10.79	9.24	9.30	9.24	7.96	8.96	10.06	10.18	9.59	10.50	9.15	8.74	9.35	9.33
Sales Workers	6.21	7.05	5.81	6.47	7.81	5.73	6.41	6.57	6.31	6.32	6.51	6.16	5.86	7.02	6.05
Clerical	15.69	14.55	13.02	11.78	19.54	10.21	16.84	13.18	12.49	12.97	13.39	12.66	11.92	13.46	13.12
Craftsmen-Foremen	11.30	11.64	15.18	11.50	12.21	9.56	11.32	11.08	9.89	11.33	9.55	10.23	9.35	9.37	10.17
Operatives- Transport	8.46	10.27	14.41	12.32	14.65	12.39	10.82	10.88	8.00	8.87	8.21	6.94	8.18	10.67	9.38
Non-Farm Laborers	3.82	3.93	6.25	3.94	4.67	3.55	4.01	4.24	3.10	2.94	2.82	2.75	2.92	3.52	3.27
Farmers- Farm Managers	10.65	8.84	3.47	15.49	2.86	23.14	9.51	13.47	15.46	17.42	16.35	19.70	21.30	15.58	14.31
Farm Laborers	4.65	4.59	2.53	4.21	0.66	5.38	1.80	5.21	3.37	2.88	3.59	4.79	5.24	3.01	5.24
Service	13.21	12.95	14.28	12.86	12.71	11.12	14.32	12.26	14.82	14.22	14.35	12.96	12.73	13.76	13.64
Private Household ²	1.10	1.43	1.17	1.56	1.08	1.50	1.37	1.59	1.80	1.29	1.58	1.46	1.91	1.90	1.34
Not Reported ²	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total ³	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

¹ For employed persons 16 years old and over.

² The base of the derived figure is too small to be shown or it is not applicable.

³ Percent may not add due to rounding.

Source: See Table II-1, No. 1)

Table III-11
AMERICAN INDIANS
OCCUPATIONAL SKILL CLASSIFICATIONS
OLD WEST REGION
1970

Skill Classifications ¹	Montana		Nebraska		South Dakota		Wyoming	
	Total	Percent	Total	Percent	Total	Percent	Total	Percent
Professional-Technical	524	10.18	190	12.40	639	11.58	68	6.96
Managers-Official Proprietors	215	4.18	37	2.42	256	4.64	74	7.57
Sales Workers	86	1.67	54	3.52	43	0.78	11	1.13
Clerical	730	14.19	179	11.68	801	14.52	123	12.59
Craftsmen-Foremen	702	13.64	151	9.86	445	8.07	109	11.16
Operatives-Transport	719	13.97	243	15.86	642	11.64	197	20.16
Non Farm Laborers	448	8.71	224	14.62	336	6.09	57	5.83
Farmers-Farm Managers	221	4.29	32	2.09	296	5.37	82	8.39
Farm Laborers	418	8.12	107	6.98	534	9.68	69	7.06
Service	1,010	19.63	281	18.34	1,254	22.73	171	17.50
Private Household	73	1.42	34	2.22	271	4.91	16	1.64
Not Reported ²	-	-	-	-	-	-	-	-
Total ³	5,146	100.00	1,532	100.00	5,517	100.00	977	100.00

¹ For employed persons 14 years and older.

² The base of the derived figure is too small to be shown or it is not applicable.

³ Percent may not add due to rounding.

Note: Data for North Dakota not provided by Bureau of Census.

Source: U.S. Bureau of Census, Census of the Population: 1970, Final Report PC 2-IF American Indians, U.S. Government Printing Office, Washington, D.C., 1973, and unpublished data obtained from special computer run on American Indians by U.S. Bureau of Census.

3.5 Educational Attainment Levels

Regional educational attainment levels in recent decades have been generally quite satisfactory. Tables III-12 through III-15 present data on educational attainment levels achieved by inhabitants of the Region who were 25 years of age or older. Tables III-12 and III-13 indicate that in both 1960 and 1970 the median years of educational attainment was higher in the Region than in the nation. In 1960 this level was about 7 percent higher in the Region (11.2 years versus 10.5 years for the nation), but by 1970 the Region was only slightly ahead (12.2 years versus 12.1 years for the nation). North Dakota was the only state that lagged the nation in median years of educational attainment in both 1960 and 1970, but by 1970 there was less than one percent difference. In both 1960 and 1970, among those 25 years of age and older, Wyoming had a higher percentage of college graduates than the nation; and this also occurred in Montana in 1970. In fact, in comparison with the nation, in both 1960 and 1970 every State in the Old West Region had a higher proportion of persons (25 years old or more) who had completed at least one year of college. This is indicative of a relatively well-educated (in terms of years of school completed) population.

Table III-14 shows 1970 educational attainment levels among persons living in the sub-State areas of the Region. The only area that really appears to be very different with regard to median years of school completed is Southwest North Dakota. The median years of educational attainment in this area was only 10.45 (about 14 percent below the Region level), whereas it was at least 12.0 or more in all other sub-State areas. However, Table III-15 shows that educational attainment levels among Indian people of the Region were especially low, achieving by 1970 only a median of 9.5 years of school completed or about 22 percent lower than the Region level. Nevertheless, it would be expected that economic returns to the Indian people be higher than they are even after allowing for their somewhat lesser levels of educational attainment. It is apparent that the economic returns to Indian people are not commensurate with their educational attainment levels in a way that is similar to the non-Indian population.

Table III-12

EDUCATIONAL ATTAINMENT
OLD WEST REGION AND NATION

1960
(years completed-percentage of population 25 years and older)

Area	None	1-7	8	High School		College		Total	Median Years
				1-3	4	1-3	4+		
Region	0.85	12.77	24.72	15.98	27.68	11.31	6.69	100.00	11.2
Montana	0.93	12.41	21.57	17.26	28.08	12.20	7.54	100.00	11.6
Nebraska	0.75	11.42	23.13	17.00	30.31	10.60	6.78	100.00	11.6
North Dakota	1.24	17.14	30.45	12.33	21.90	11.36	5.58	100.00	9.3
South Dakota	0.65	13.12	29.77	14.26	25.05	11.44	5.71	100.00	10.4
Wyoming	0.77	10.81	17.33	19.06	31.06	12.31	8.66	100.00	12.1
United States	2.29	19.89	17.54	19.22	24.59	8.79	7.67	100.00	10.5

Source: See Table II-1, No. 1)

Table III-13

EDUCATIONAL ATTAINMENT
OLD WEST REGION AND NATION

1970
(years completed-percentage of population 25 years and older)

Area	None	1-7	8	High School		College		Total	Median Years
				1-3	4	1-3	4+		
Region	0.76	8.35	19.31	14.46	33.98	13.44	9.70	100.00	12.2
Montana	0.77	8.18	16.17	15.69	34.05	14.13	11.01	100.00	12.3
Nebraska	0.72	7.27	17.34	15.41	37.21	12.40	9.65	100.00	12.2
North Dakota	1.00	11.96	25.67	11.04	27.58	14.35	8.39	100.00	12.0
South Dakota	0.59	8.48	24.80	12.80	31.16	13.58	8.59	100.00	12.1
Wyoming	0.80	6.88	12.40	17.07	36.23	14.84	11.78	100.00	12.4
United States	1.61	13.93	12.75	19.37	31.08	10.60	10.66	100.00	12.1

Source: See Table II-1, No. 1)

Table III-14

EDUCATIONAL ATTAINMENT
OLD WEST REGION
SUB-STATE AREAS

(years completed-percentage of population 25 years and older)

1970

Years Completed	Montana			Nebraska			North Dakota			South Dakota			Wyoming					
	N.E.	S.E.	West	Cent.	East	N.E.	S.E.	West	N.E.	S.E.	West	N.E.	S.E.	West	East	N.W.	S.W.	
None	.82	.75	.73	.57	.89	.48	.69	.89	1.56	.64	.67	1.26	.57	.53	.68	.76	.94	.91
1-7	7.93	8.59	8.05	6.96	6.77	9.08	6.72	8.81	11.35	9.48	11.51	15.37	9.13	8.09	8.25	6.48	6.73	9.56
8	15.69	16.72	16.18	19.83	12.93	25.63	16.40	16.93	24.15	24.43	25.45	28.54	27.41	25.90	20.59	12.31	13.41	11.75
1-3	15.37	14.32	17.25	15.64	16.62	14.05	13.70	16.63	11.79	12.15	10.61	9.97	11.75	11.96	14.99	16.73	17.00	19.30
4	35.28	33.06	33.68	37.69	38.26	34.79	37.23	35.40	27.85	30.73	27.58	24.55	29.99	30.98	32.68	36.02	36.15	37.65
1-3	14.15	15.09	13.25	12.19	12.81	10.35	13.16	13.12	13.99	15.13	15.14	12.90	13.13	13.65	13.98	15.46	14.60	11.22
4+	10.75	11.47	10.86	7.12	11.72	5.63	12.11	8.21	9.32	7.45	9.05	7.40	8.03	8.90	8.84	12.24	11.18	9.61
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Median Years	12.29	12.26	12.23	12.19	12.33	12.02	12.34	12.19	12.04	12.11	12.06	10.45	12.04	12.11	12.20	12.38	12.33	12.23

Source: See Table II-1, No. 1).

Table III-15

INDIAN EDUCATIONAL ATTAINMENT
OLD WEST REGION

1970

(years completed-percentage of population 25 years and older)

Years Completed	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent
None	738	2.44	276	2.81	72	2.68	156	3.30	169	1.51	65	3.61
1-7	6,956	23.02	2,136	21.72	632	23.51	1,337	28.31	2,590	23.20	261	14.48
8	6,003	19.87	1,833	18.64	388	14.43	999	21.15	2,445	21.90	338	18.75
1-3 } High School	8,138	26.93	2,891	29.40	751	27.94	1,046	22.15	2,981	26.70	469	26.01
4 }	5,853	19.37	1,851	18.82	644	23.96	775	16.41	2,123	19.01	460	25.51
1-3 } College	1,934	6.40	660	6.71	136	5.06	317	6.71	647	5.79	174	9.65
4+ }	592	1.96	188	1.91	65	2.42	93	1.97	210	1.88	36	2.00
Total ¹	30,214	100.00	9,835	100.00	2,688	100.00	4,723	100.00	11,165	100.00	1,803	100.00
Median Years	9.52	--	9.70	--	10.01	--	8.87	--	9.38	--	10.52	--
Mean Years	8.78	--	8.84	--	8.91	--	8.30	--	8.78	--	9.45	--

¹ Percent may not add due to rounding.

Source: U.S. Bureau of Census, Census of Population: 1970, Final Report PC (2)-IF American Indians, U.S. Government Printing Office, Washington, D.C., 1973, and unpublished data obtained from special computer run on American Indians by the U.S. Bureau of Census.

CHAPTER IV

NATURAL RESOURCES

AND RESOURCE

BASED INDUSTRIES

4.1 Summary

The Region contains a substantial proportion of the nation's land area, and agriculture predominates as a land use and economic activity. Production of crops and livestock have increased substantially during the past ten years, and prices have also increased.

The Region generally has had adequate water supplies, but substantial growth in utilization coupled with localized availability contribute to water resource problems. A major problem will continue to be how to move water from "water surplus" areas to "water deficient" areas.

Mining, particularly coal and other fuels, has shown a considerable ten-year growth trend, and the development potential for these resources is great. This potential is concentrated in North Dakota, Montana, and Wyoming. Both forestry and tourism are relatively small factors in the Region's economy, and the development potential for these activities is somewhat restricted. However, forestry and tourism are important activities in several sub-State and local areas.

Specifically:

1. More than 13 percent of the nation's land area is accounted for by the Region, and over 70 percent of the land is privately owned. However, about 55 percent of Wyoming's and 41 percent of Montana's lands are under public control. Federal ownership or administration account for over 85 percent of the public land. Over 70 percent of the Region's land is used for agricultural purposes, and 83 percent of the land is suitable for agricultural use (assuming the availability of sufficient water). About 45 percent of the Nation's agriculturally productive land is in the Region. Approximately 60 percent of the Region's grasslands are in Montana and Wyoming while almost 80 percent of the Region's croplands are located in the three eastern States. Very little (less than 1 percent) of the Region's land area has been urbanized.
2. In a gross sense the Region has had adequate water resources to fully meet its annual needs. However, there are problems with fluctuating flow rates and with severe shortages in specific locations throughout the Region. Four river basins account for virtually all of the Region's watershed, and the Missouri River Basin has a drainage area encompassing almost 70 percent of the Region's total area. In 1970, ground

water supplied about 20 percent of the water used by the Region, and this water source is particularly important to local areas without access to surface water supplies. A 70 percent increase in water use was experienced from 1960 to 1970, and over 80 percent of the water used was consumed or not returned to ground or downstream sources. This growth rate in use was over twice the national figure for the same period. Considerable competition between irrigation and energy-related developments for existing water resources could develop in localized areas in the Region during the next ten years. There also exist a number of institutional barriers constraining the transfer and use of water. However, it was estimated that in 1970 the Upper Missouri River had an additional 9.9 million acre-feet of surface water available annually for use.

3. The major portion of the Region's land and water resources are currently utilized for farming or ranching activities. Over 233 million acres are committed to farming, and this acreage has declined only slightly in recent years. However, the number of farms and ranches have declined considerably in recent years. Wheat (almost 33 percent of the nation's value of production in 1973) and corn, are the Region's principal crops, and wheat production rose by 100 percent during the past 14 years while corn production rose by 84 percent. Other crops showed even more dramatic production increases. There have also been dramatic, but erratic, rises in grain prices in recent years. Between 1969 and 1973 wheat prices experienced a 242 percent increase to \$4.38 per bushel. The market value of livestock and poultry have also increased over 180 percent from 1959 to 1973. Agriculture is by far the largest "industry" in the Region. The value of all crops harvested in 1973 was estimated at \$6.3 billion, with those sold valued at \$3.7 billion. The value of livestock and poultry sold in 1973 was estimated at \$5.0 billion. The value of all regional crops and livestock sold in the Region in 1973, therefore, was almost \$8.7 billion.
4. The Region is a relatively small producer of forestry products, with primary production occurring in Montana and additional activity in Wyoming. The Region's supply of timber is only about 5 percent of the national total. The value of regional saw timber production was only about \$126 million in 1970.
5. Mining operations have shown substantial increases in production in recent years. In 1974, the value of mineral production in the Region was over \$2.5 billion. Montana and Wyoming together account for almost 85 percent of this value of production, with Wyoming alone accounting for over 60 percent.

In 1974, crude petroleum was the most valuable mineral product mined in the Region, valued at almost \$1.4 billion. However, coal production is growing rapidly in the Region and the future potential is very large. Coal reserves in a 63-county area of the Region have been estimated at 1.5 trillion tons, of which 54 billion tons are currently recoverable. Regional output of coal grew from 4 percent of the national total in 1971 to 7 percent in 1974. The very large known reserves of coal in the Region coupled with the recent increases in coal prices provide substantial incentives for rapid growth of coal mining activities in the Region. In addition to coal and oil, natural gas and uranium are important energy resources available in the Region. While not as extensively available as coal and oil, natural gas and uranium are available in substantial quantities in the Region, and economic pressures have increased to develop these resources as the price of energy continues to rise.

6. Domestic travel expenditures in the Old West Region were estimated at \$839 million in 1972. The Region has several popular and very scenic natural areas which attract large numbers of tourists each year. Overnight travel and tourism facilities are primarily situated in urban areas, along Interstate highways, and near Glacier National Park, Yellowstone/Teton National Parks, and Mt. Rushmore National Monument. Visitations to these latter attractions grew substantially during the 1960's, but moderate declines have occurred since 1973. While there are many attractions in the Region, the short summer season, great distances, the lack of large nearby metropolitan markets, and the relatively small numbers (compared to the East) of out-of-state traffic on the Interstate highways could restrict tourism development during the next ten years. However, growth potential oriented around current major attractions could help offset these growth barriers.

4.2 Land

The Old West Region encompasses a total land area of approximately 297 million acres or 465 thousand square miles. In all, the Region accounts for more than 13 percent of the total U.S. land mass. As shown in Table IV-1, slightly more than 70 percent of the regional land area is privately owned, while the remaining 30 percent is publicly controlled. Although, public lands represent less than one-third of the total regional area, it should be noted that over 55 percent of Wyoming is under public control. Similarly, 41 percent of Montana's total land area is publicly held. In contrast, public lands account for only 5.7 percent of Nebraska's total land area, 8.7 percent of North Dakota's land area and 19.4 percent of South Dakota's total land area.

Table IV-1
LAND OWNERSHIP OR ADMINISTRATION
OLD WEST REGION
1972
(in acres)

Ownership 1972	Region	Montana	Nebraska	North Dakota	South Dakota	Wyoming	Region as Per- cent of Nation
Total Area ¹	300,794,240	94,168,320	49,425,280	45,225,600	49,310,080	62,664,960	13.0
Inland Water Area ¹	3,503,600	992,640	476,160	890,880	698,880	445,040	7.0
Land Area ¹	297,280,640	93,175,680	48,949,120	44,334,720	48,611,200	62,209,920	13.1
Public Land Area Portion of Total Land	88,381,121 29.73%	38,154,085 40.95%	2,812,200 5.75%	3,939,071 8.88%	9,586,428 19.72%	33,889,337 54.48%	3.3 ²
Federal Land Area Portion of Total Land	74,707,267 25.13%	32,809,890 35.21%	765,341 1.56%	3,049,941 6.88%	8,094,687 16.65%	29,987,408 48.20%	3.2
Forest Service	29,392,427	16,704,075	350,567	1,105,234	1,985,702	9,246,849	
Fish and Wildlife	1,170,941	530,067	150,834	348,941	96,748	44,351	
Bureau of Land Management	25,984,724	8,145,093	7,684	68,639	276,352	17,486,956	
National Park Service	3,680,316	1,157,875	4,809	69,130	137,989	2,310,513	
Bureau of Reclamation	1,305,157	287,017	67,087	34,801	49,509	866,743	
Dept. of Defense	1,883,325	629,717	76,627	581,061	569,737	26,183	
Bureau of Indian Affairs	292,867	124,461	170	6,519	161,717	---	3
Indian Trust	10,871,882	5,158,271	61,115	834,273	4,815,316	2,907	
Other	125,628	73,314	46,448	1,343	1,617	2,906	
State and Local Gov't Ownership ⁴	13,673,854	6,344,195	2,046,859	889,130 ⁵	1,491,741 ⁵	3,901,929 ⁵	
Private Land (est.) ⁶	208,899,519	55,021,595	46,136,920	40,395,649	39,024,772	28,320,583	

- 1 As of 1970.
- 2 As of 1969.
- 3 Negligible as of 1973.
- 4 As of 1968.
- 5 Data on local government ownership not available.
- 6 Difference between "Total" and "Public" areas.

Source: 1) Bureau of Land Management, Public Land Statistics: 1973, U.S. Department of the Interior, USGPO, Washington, D.C., 1974.
2) Bureau of Indian Affairs, "Aberdeen Area Statistical Data: July 1973", Aberdeen Area Office, Aberdeen, South Dakota, and "Billings Area Statistical Data", Nov. 1973, Billings Area Office, Billings, Montana.
3) "Estimates on stated local government land area obtained from Governor Representatives to the Public Land Law Review Commission." Data provided by the Bureau of Land Management, Department of Interior.

Of the land presently held in the public domain, the Federal Government is by far the largest property holder (see Figure IV-1). More than 85 percent of all publicly held land within the Region is currently controlled by Federal agencies. Among the Federal agencies which administer properties in the Old West Region, the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) are the largest property administrators. For example, the USFS administers more than 29 million acres of regional forestlands; about 26 million acres being located in Montana and Wyoming. The BLM controls 34 percent of all the Federal land in the Region, administering 17.5 million acres in Wyoming and another 8.1 million acres in Montana.

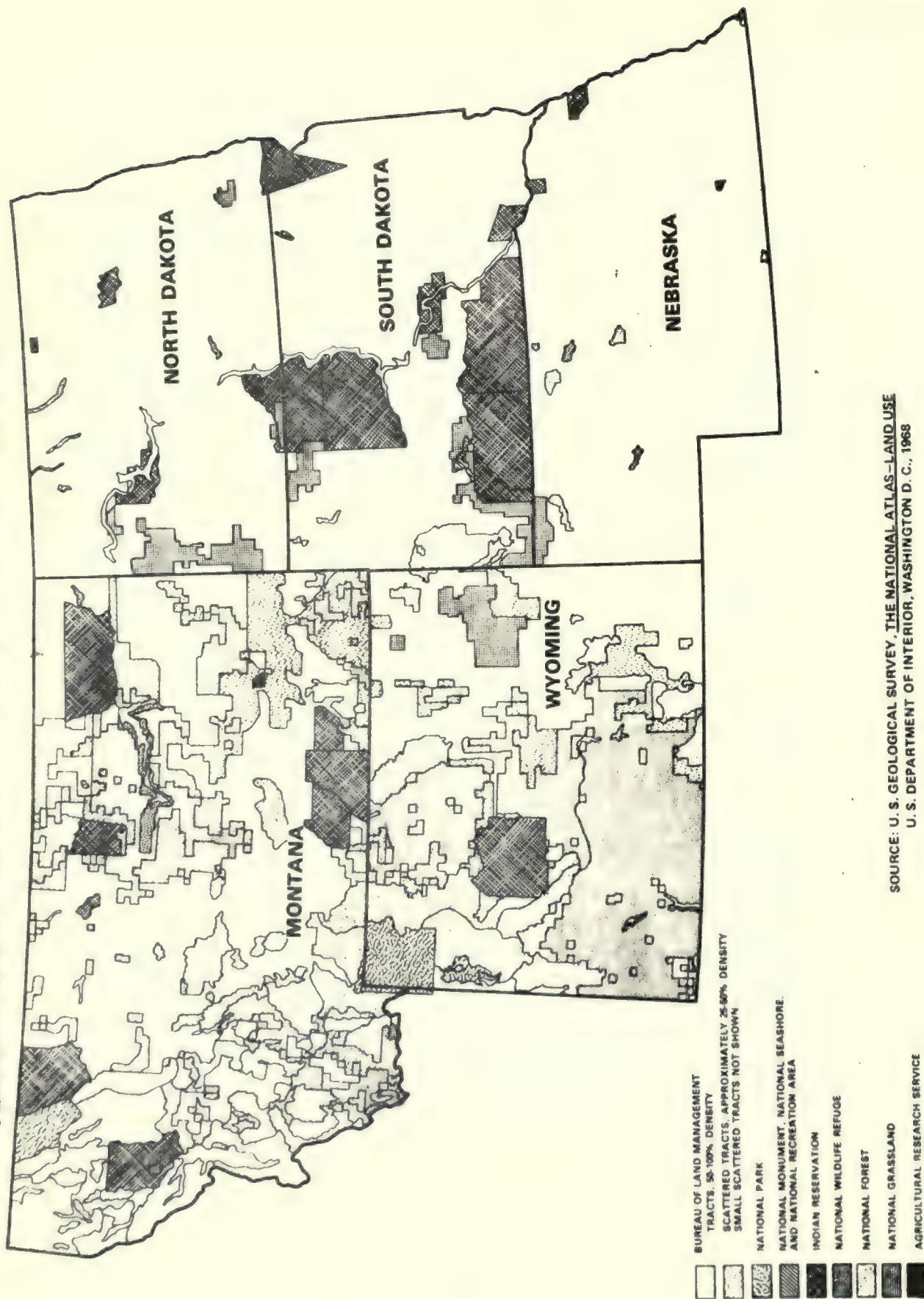
Land held in trust by the Federal Government for regional Indian tribes represents the third largest proportion (14.6 percent) of Federal land in the Region. Figure IV-1 depicts the principal tracts of Indian land presently administered by the Federal Government. As shown, about 92 percent of the Region's Indian lands are located in Montana (47.4 percent) and South Dakota (44.3 percent). In addition to this land held in trust, another 300 thousand acres of land is held by the Bureau of Indian Affairs for a multiplicity of purposes.

As mentioned earlier, much of the land contained in the Old West Region is well suited for some form of agricultural production. For example (see Table IV-2), the Region contains 153 million acres (51.6 percent of the total land area) of grasslands suitable for the raising of livestock. Another 93 million acres (31.5 percent of the total land area) is characterized as cropland, upon which a variety of crops can be and are presently grown. In all, 83 percent of the Region's land area is considered suitable for agricultural activity. Further, the Region accounts for more than 45 percent of the agriculturally productive land contained in the United States.

Figure IV-2 illustrates the land use patterns that have developed within the Old West Region. For example, over 60 percent of the Region's grasslands are located in Montana (32.5 percent) and Wyoming (30 percent). On the other hand, almost 80 percent of all regional croplands are located in Nebraska, South Dakota, and North Dakota.

Evidence of the Region's rural, predominantly agricultural orientation is the fact that less than one percent of the Region's total land area has been urbanized. As expected, Nebraska, with the Region's two largest cities (Omaha and Lincoln), is the most urbanized of the five States. Yet, Nebraska's urban areas account for only 0.4 percent of the State's total land area. Additional evidence of the Region's rural nature is indicated by the amount of land committed to rural transportation -- an area substantially larger than that contained in urban areas.

FIGURE IV-1
FEDERAL LAND ADMINISTRATION PATTERNS—OLD WEST REGION



SOURCE: U. S. GEOLOGICAL SURVEY, THE NATIONAL ATLAS—LAND USE
 U. S. DEPARTMENT OF INTERIOR, WASHINGTON D. C., 1968

Table 17-2

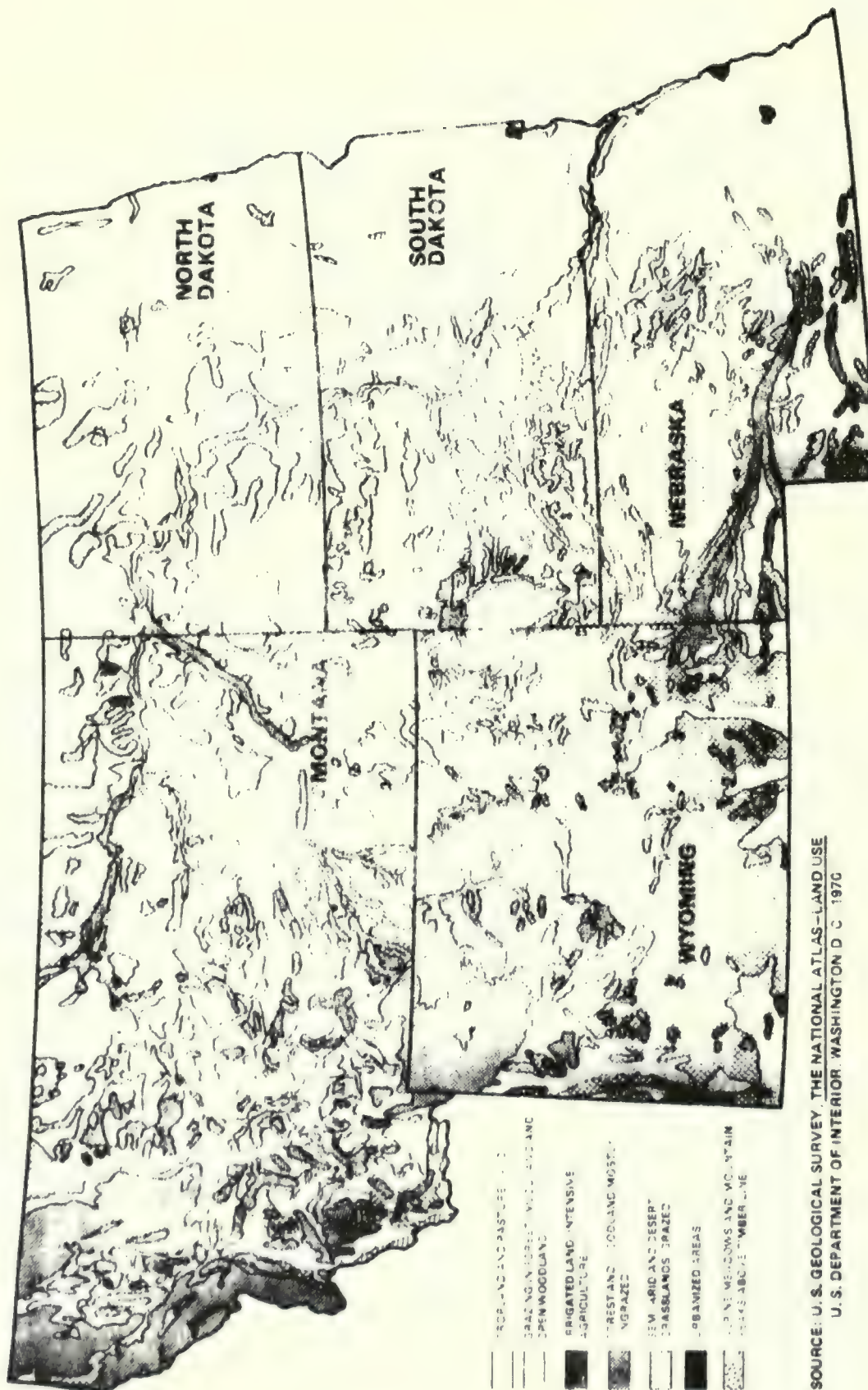
GENERAL LAND USE
OLD WEST REGION
1969

(approximated in thousands of acres)

Land Uses	Region	Montana	Nebraska	North Dakota	South Dakota	Wyoming	Region as a Proportion of United States
Cropland¹							19.9%
Total	93,716	16,493	23,379	30,187	20,844	2,813	
Percent of Region ²	100.0	17.5	24.9	32.2	22.2	3.0	
Cumulative Percent of Regional Total ³	31.5						
Grassland³							25.4%
Total	153,271	49,873	22,179	11,278	24,030	45,911	
Percent of Region ²	100.0	32.5	14.5	7.4	15.7	30.0	
Cumulative Percent of Regional Total ³	51.6						
Forest and Woodland							4.8%
Total	36,062	22,777	1,045	422	1,733	10,085	
Percent of Region ²	100.0	63.2	2.9	1.2	4.8	28.0	
Cumulative Percent of Regional Total ³	12.1						
Urban⁴							1.6%
Total	558	93	214	34	106	61	
Percent of Region ²	100.0	16.7	38.4	15.1	19.0	10.9	
Cumulative Percent of Regional Total ³	3.1						
Rural Transportation							13.4%
Total	3,469	733	936	683	742	375	
Percent of Region ²	100.0	21.1	27.0	19.7	21.4	10.8	
Cumulative Percent of Regional Total ³	1.2						
Other⁵							2.7%
Total	10,205	3,207	1,196	1,681	1,156	2,965	
Percent of Region ²	100.0	31.4	11.7	16.5	11.3	29.1	
Cumulative Percent of Regional Total ³	3.4						

¹ Total acreage in crop rotation.² Totals may not add due to rounding.³ Pasture and range, and excludes cropland need only for pasture.⁴ Urbanized places of 1,000 persons or more.⁵ Includes: rural parks, wildlife refuge, national defense and industrial areas, state institutional and miscellaneous, farmsteads, farm roads and lanes.Source: Economic Research Service, Major Uses of Land in the U.S., U.S. Dept. of Agriculture, 1969.

FIGURE IV-2
LAND USE PATTERNS—OLD WEST REGION



SOURCE: U.S. GEOLOGICAL SURVEY, THE NATIONAL ATLAS—LAND USE
U.S. DEPARTMENT OF INTERIOR, WASHINGTON D.C. 1970

4.3 Water

The availability of water has been and continues to be a key factor in the overall development and growth of the Old West Region. Whereas land is an abundant resource throughout much of the Region, water is a relatively scarce resource in many areas. Given the Region's relatively low annual rainfall (see Figure IV-3), it is clear why the Region must rely heavily upon its captured supplies of surface and ground water to meet regional water requirements. It is also clear why the allocation and use of available water supplies have over the years been closely controlled.

4.3.1 Supplies

Regional supplies of surface water are drawn from parts of four major water basins within the Old West Region. Figure IV-4 depicts the boundaries of these four basins: the Missouri, the Souris-Red-Rainy, the Columbia-North Pacific and the Upper Colorado. Of the four, the Missouri River Basin is by far the largest basin in the Region, having a drainage area (within the Region) in excess of 320 thousand square miles (see Table IV-3). The Missouri Basin, alone, encompasses almost 70 percent of the Region's total area.

Aside from the main stem of the Missouri River which is a principal source of surface water for much of the Region, other rivers in the Missouri Basin that contribute significantly to regional supplies (in terms of annual flows; see Table IV-3), include: the Bighorn, Platte, Niobrara, and Yellowstone Rivers. The Red River is the major stream in the Souris-Red-Rainy Basin with a drainage area of 40 thousand square miles (at least half of this area is outside the Region) and an annual flow of nearly 3 million acre-feet. The Kootenai, Clark Fork and Blackfoot are the major rivers in the Columbia-North Pacific Basin that flow through the Old West Region, all having an annual flow rate of more than a million acre-feet per year. The Green River is the major tributary in that portion of the Upper Colorado Basin in the Old West Region.

Although the average annual flows of the rivers in the three smaller basins are substantial, their relative contributions to the regional supplies have been relatively minor. Several factors account for this disproportionate contribution. First, these basins encompass relatively small areas within the Region and major rivers in these basins flow away from the more densely populated areas with the largest water supply requirements. Second, interstate and international compacts limit the quantities of water which States within the Region can withdraw for local uses. Finally, the rivers in these basins are subject to radical fluctuations in the rate of flow during any given year, precluding efforts to develop effective, long-range water use plans.

No. 5

Table IV-3

FLOW DATA FOR MAJOR
RIVERS AND TRIBUTARIES
OLD WEST REGION

River or Major Tributary	Drainage Area (square miles)	Annual Flow ¹ (thousands of acre-feet/year)
I. Missouri River Basin		
Main Stem Missouri River		
- at Herman, Missouri	523,000	53,600
- at Sioux City, Iowa	314,600	21,821
- at Oahe Dam	243,000	18,525
Belle Fourche River	5,870	184
Bighorn River	22,885	2,550
Cannonball River	4,310	149
Cheyenne River	12,800	271
Clarks Fork	2,783	767
Grand River	2,390	146
Heart River	3,310	154
Knife River	2,507	118
Little Missouri River	8,500	390
Moreau River	5,700	170
Powder River	13,415	416
Tongue River	5,400	304
Yellowstone River	70,115	8,800
Other Tributaries		
- Eastern Dakota ²	58,300	3,235
- Upper Missouri ³	91,557	7,276
Platte River		
- at South Bend	88,800	3,989
- North Platte River (at North Platte, Neb.)	34,900	1,188
- South Platte River (at North Platte, Neb.)	24,300	418
Loup River (at Columbus, Neb.)	15,200	597
Elkhorn River (at Waterloo, Nebraska)	6,900	822
Niobrara River (at Verdel, Nebraska)	12,600	1,110
Republican River (at Republican City, Neb.)	20,750	236
II. Souris-Red-Rainey River Basin		
Souris River (at Verendrye, N.D.) ⁴	11,300	123
Red River (at Emerson, N.D.) ⁵	40,200	2,277
Sheyenne River (at West Fargo, North Dakota)	8,870	120
III. Upper Colorado River Basin		
Green River	15,100	1,444

Table IV-3 (cont.)

FLOW DATA FOR MAJOR
RIVERS AND TRIBUTARIES
OLD WEST REGION

River or Major Tributary	Drainage Area (square miles)	Annual Flow ¹ (thousands of acre-feet/year)
IV. Columbia-North Pacific Basin ⁵		
Kootenai River (at Libby, Mont.)	10,240	8,817
Clark Fork		
- above Missoula, Mont.	5,999	2,162
- Below Missoula, Mont.	9,003	3,947
Blackfoot River (near Darby, Mont.)	2,290	1,200
Bitterroot River (near Darby, Mont.)	1,049	673

- ¹ Flow data shown are average flows recorded during the period 1900 to 1972 and take into account developments in water control and increasing levels of utilization thru 1970.
- ² Eastern Dakota tributaries include such major streams as the James and Big Sioux Rivers.
- ³ Upper Missouri Tributaries include such major streams as the Milk, Marias, Sun and Teton Rivers.
- ⁴ Drainage area shown includes territory located in Minnesota and Canada.
- ⁵ Drainage areas shown for the rivers in this basin include territory located outside the Old West Region.

Source: Missouri Basin Inter-Agency Committee, The Missouri River Basin Comprehensive Framework Study, U.S. Government Printing Office, Washington, D.C., 1971.

U.S. Geological Survey, Water Resources Data 1972: Part 1 Surface Water Records for the States of Montana, Nebraska, North Dakota, South Dakota and Wyoming; U.S. Department of the Interior, 1973.

Water for Energy Management Team, Report On Water For Energy in the Northern Great Plains Area With Emphasis On the Yellow River Basin; U.S. Department of Interior, 1975.

Radical fluctuations in flow rates are characteristic of many rivers and streams throughout the Region. The combination of large runoffs from melting snows and heavy spring rains have often resulted in one or more of the Region's rivers rising to flood or near flood stages. On the other hand, a number of rivers and streams within the Region are apt to experience periods during the year when they register no flow at all. During droughts, these no flow conditions may continue for long periods of time, resulting in critical water shortages.

To counter the varied problems caused by such radical flow activity, an extensive network of reservoirs has been developed on the Region's major rivers. Water is stored in these reservoirs for a variety of purposes, including irrigation, flood control, recreation, navigation, domestic and industrial uses, and the generation of hydro-electric power. The objective of this reservoir network is to "even out" or regulate (to some degree) the daily flows of the Region's rivers in an attempt to ensure an adequate supply of year-round surface water. Figure IV-4 depicts the location of the Region's major reservoirs, while Table IV-4 identifies their respective storage capacities.

As of 1965, the Missouri Basin contained 107 major reservoirs and 1,387 smaller reservoirs with a total storage capacity of over 112 million acre-feet.¹ The six main-stem Missouri reservoirs (Fort Peck, Lake Sakakawea, Lake Oahe, Lake Sharpe, Lake Francis Case and Lewis and Clark Lake), alone, have a combined storage capacity of over 74 million acre-feet (see Table IV-4). Within the Missouri Basin there are five other reservoirs that have storage capacities of more than one million acre-feet: Bighorn Lake (1.4 million acre feet), Canyon Ferry Lake (2.1 million acre-feet), Lake McConaughy (1.9 million acre-feet), Pathfinder Reservoir (1 million acre-feet) and Seminole Reservoir (1 million acre-feet). Reservoirs in the other three basins with storage capacities of at least one million acre-feet include: Flaming Gorge Reservoir (3.8 million acre-feet -- on the Green River), Flathead Lake (1 million acre-feet -- on the Flathead River), Hungry Horse Reservoir (3.4 million acre-feet -- on the Flathead River) and Lake Koocanusa (5.7 million acre-feet -- on the Kootenai River).

In addition to surface water, many areas within the Old West Region must rely upon supplies of ground water to satisfy their total water requirements. The importance of ground water to the Region is exemplified by the fact that in 1970, 20 percent of all the water used by the Region was supplied by subterranean wells. Availability of adequate ground water is particularly important to those areas where surface water is not readily accessible. Figure IV-5 depicts the location of the Region's

¹ Missouri Basin Inter-Agency Committee, The Missouri River Basin Comprehensive Framework Study, U.S. Government Printing Office, p. 55.

Table IV-4

STORAGE CAPACITIES OF MAJOR RESERVOIRS
OLD WEST REGION

River	Reservoir	Storage Capacity (in thousand acre-feet)
Missouri	Canyon Ferry Lake	2,051
	Fort Peck	18,900
	Lake Sakakawea (Garrison Dam)	24,200
	Oahe	23,500
	Lake Sharpe (Big Bend)	1,910
	Lake Francis Case (Fort Randall)	5,750
	Lewis and Clark Lake (Gavins Point)	522
North Platte River	Seminole	1,011
	Pathfinder	1,016
	Alcova	184
	Glendo	795
	Lake McConaughy	1,948
Wind	Bull Lake	153
	Boysen Lake	952
Shoshone	Buffalo Bill	421
Bighorn	Yellowtail Res.-Bighorn Lake	1,375
Flathead	Flathead Lake	1,791
	Hungry Horse	3,428
Republican	Swanson (Trenton Dam)	254
	Harlan County Reservoir	342
Belle Fourche	Keyhole	200
	Belle Fourche	185
Cheyenne	Angostura	139
Heart	Lake Tschida	226
James	Jamestown	230
Sheyenne	Lake Ashatubala	117
Kootenai	Lake Koocunusa (Libby Dam)	5,694
Marias	Tiber	575
Milk	Fresno	244
Sun	Gibson	105
Red	Hap Hawkins-Clark Canyon	329

Table IV-4 (cont.)

STORAGE CAPACITIES OF MAJOR RESERVOIRS
OLD WEST REGION

River	Reservoir	Storage Capacity (in thousand acre-feet)
Madison	Hebgen Lake	377
Green	Fontonelle	190
	Flaming Gorge	3,789
Grand	Shadehill	357

- Source: 1) Missouri Basin Inter-Agency Committee, The Missouri River Basin Comprehensive Framework Study, U.S. Government Printing Office, Washington, D.C., 1971.
- 2) U.S. Geological Survey, Water Resources Data 1972: Part 1 Surface Water Records for the States of Montana, Nebraska, North Dakota, South Dakota and Wyoming; U.S. Department of the Interior, 1973.
- 3) Water for Energy Management Team, Report On Water for Energy in the Northern Great Plains Area With Emphasis On the Yellow River Basin; U.S. Department of Interior, 1975.

SHADED PATTERNS INDICATE AREAS UNDERLAIN BY ONE OR MORE AQUIFERS. GENERALLY, CAPACITIES YIELDING TO A WELL AT LEAST 100 GALLONS PER MINUTE OR 3 FEET PER SECOND OF FRESH WATER ARE GENERALLY LESS THAN 100 FEET OR MORE PARTS PER MILLION OF DISSOLVED SOLIDS.

UNCONSOLIDATED AQUIFERS

WATERCOURSE ALLUVIAL VALLEY TRAVERSED BY STREAM FROM WHICH RECHARGE CAN BE INDUCED

SAND AND GRAVEL IN INTERMONTANE VALLEYS ABANDONED OR BURIED ALLUVIAL VALLEYS ALLUVIAL TERRACES SAND DUNES COASTAL PLAINS AND GREAT PLAINS GLACIAL OUTWASH AND ICE CONTACT DEPOSITS OF GLACIATED REGIONS

CONSOLIDATED ROCK AQUIFERS

SOURCE: U. S. GEOLOGICAL SURVEY. GROUND WATER, U. S. DEPARTMENT OF INTERIOR. WASHINGTON, D. C. 20549.

CRAIG, LAWRENCE C. GEOLOGIC ATLAS OF THE ROCKY MOUNTAIN REGION. HISTORICAL GEOLOGY OF THE MISSISSIPPIAN SYSTEM, P. 100-110. ROCKY MOUNTAIN ASSOCIATION OF GEOLOGISTS. DENVER, COLORADO, 1972.

principal shallow ground water formations. In addition, the outlines of the much deeper and extensive Madison Formation aquifer is shown in Figure IV-5.

Yields from ground water wells vary widely throughout the Region. For example, many wells in parts of Nebraska produce more than 500 gallons per minute, sufficient for irrigation and industrial uses. Some wells in parts of western Montana, on the other hand, yield less than 50 gallons per minute, enough only for small domestic use.¹ Of the five States Nebraska has the greatest potential supply of ground water with an estimated 2 billion acre-feet lying underground.² However, it should be noted that much of this water is contained in aquifers (e.g., the Madison Formation) far beneath the surface, and thus is not readily accessible.

Substantial quantities of ground water exist in relatively shallow aquifer formations that underlie the Williston Basin in North Dakota and the Powder River Basin in Montana and Wyoming. While sedimentation is a significant problem in both of these aquifers, these aquifers are viewed as potential suppliers of water for future developments in these two areas.³ The central portion of the Madison Formation, underlying the Black Hills of South Dakota and extending into Montana, North Dakota and Wyoming, is also seen as a potential source of water for future development, especially in eastern Wyoming.⁴

4.3.2. Utilization

Depletions of existing surface and ground water supplies (i.e., withdrawal of water from the water source for use within the Old West Region have significantly increased over the years.⁵ As shown in Table IV-5, a total of 23.6 million acre-feet of water was withdrawn from surface and ground water sources for use in 1970 (the four principal use categories being; 1) irrigation, 2) self supplied industrial water, 3) public supply, and 4) rural use). This represents a 57.5 percent increase over the 1965 depletion level and a 70.3 percent increase over the 1960 depletion level. This 70 percent increase in regional water supply depletions over the ten year period from 1960 to 1970 is nearly 20 percent higher than the national rate of increase (50.9 percent) during the same period.

¹ Ibid, p. 60.

² Nebraska Soil and Water Conservation Commission, Report on the Framework Study, 1971, p. 35.

³ United States Geological Survey, Report on Mineral and Water Resources of North Dakota, prepared at the Request of Senator Quentin N. Burdick, 1973; pp 176-183.

U.S.G.S. Report on Mineral and Water Resources of Wyoming, Prepared at the Request of Senator Gale McGee, 1960; pp 34-37.

⁴ U.S.G.S. Report on Mineral and Water Resources of South Dakota, Prepared at the Request of Senator George McGovern, 1964; pp 176-178.

⁵ U.S.G.S. Estimated Use of Water in the United States in 1970, p. 8.

WATER USE BY STATE
WEST REGION AND NATION
1960, 1965, AND 1970
Thousands of acre-feet

	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		United States	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
Public Supply Systems¹														
Surface Water	220	210	100	80	65	74	21	29	10	18	20	28	16,000	18,000
Ground Water	270	300	27	29	134	123	16	27	52	30	47	27	9,000	10,000
All Water	500	510	127	109	197	206	37	56	62	48	67	55	23,000	28,000
Consumptive Use ²	140	120	63	50	3	12	13	16	21	18	18	27	4,000	4,000
Rural Use³														
Surface Water	100	100	30	17	4	7	24	22	7	29	40	17	1,000	1,000
Ground Water	180	240	17	31	96	101	19	25	29	37	73	9	3,000	4,000
All Water	280	340	47	48	100	108	43	47	36	66	113	26	4,000	5,000
Consumptive Use	260	340	38	48	100	108	43	47	36	54	112	25	3,000	4,000
Irrigation														
Surface Water	10,220	14,790	17,120	8,500	1,000	2,200	94	160	190	130	230	3,400	5,100	81,000
Ground Water	1,640	1,900	38	71	1,500	1,800	14	9	30	38	59	35	64	46,000
All Water	11,860	16,690	17,158	8,571	2,500	4,000	108	169	220	168	289	3,434	5,130	127,000
Consumptive Use	6,190	10,360	2,700	6,000	1,200	2,900	63	120	150	130	140	2,100	2,200	58,000
Conveyance Loss ⁴	4,730	3,810	1,900	2,500	1,300	750	31	53	66	97	110	88	1,400	25,000
Self-Supplied Industrial Water⁵														
Surface Water	1,180	1,220	255	164	753	726	9	96	399	8	16	7	157	48,000
Ground Water	90	200	40	27	13	99	12	12	17	12	16	207	10	8,000
All Water	1,270	1,420	295	191	766	825	21	108	416	20	32	214	167	56,000
Consumptive Use	50	50	26	25	7	2	3	6	8	6	13	22	9	4,000
Total Depletion	13,870	15,000	23,630	6,107	3,565	5,130	195	361	728	316	482	685	3,723	277,000
Total Consumptive Use ⁶	11,370	14,680	19,160	4,727	2,616	3,772	153	242	291	308	393	387	3,572	94,000
														115,000
														125,000

Note: Totals may not add due to rounding.

1 "Public Supply Systems" refers to publicly or quasi-publicly operated water utilities.

2 "Consumptive Use" refers to the amount of water withdrawn that is no longer available for use because it has either been evaporated, transpired, incorporated into products or crops, consumed by man, or otherwise removed from the water environment (definition provided by U.S. Geological Survey).

3 "Rural Use" refers to water used by individual families or communities not served by a public utility.

4 "Conveyance Loss" is the amount of water lost in the transference of water from the source of supply to the area designated for irrigation.

5 "Self-Supplied Industrial Water" is water which an industry withdraws directly from the source as opposed to water supplied to the industry by a public utility. This category includes water used for thermoelectric power generation.

6 Totals include the amount of water lost through irrigation conveyance.

Source: U.S. Geological Survey, Estimated Use of Water in the United States (Geological Survey Circulars 456, 556, 676)
U.S. Department of the Interior.

More important than the rate of depletion is the rate of consumption (that amount of water which is withdrawn from the source and is not directly returned to the source)¹. In each of the three years (1960, 1965 and 1970) shown in Table IV-5, over 80 percent of the water withdrawn for use from the Region's surface and ground water sources was consumed or not returned (consumptive uses include evaporation losses). When compared to the fact that the average rate of water consumption nationwide was approximately 32 percent for the same period, it becomes even more apparent just how important existing water supplies are to the Old West Region.

The largest single use of water in the Region is for irrigation (see Table IV-5). As of 1970, over 8 million acres of land were being irrigated in the five State area.² The 20 million acre-feet of water withdrawn from surface and underground supplies for irrigation accounted for 86 percent of the Region's total 1970 depletion. This compares with 2 percent for public supply systems (includes some industrial use, see Table IV-6), 2 percent for rural use (including the watering of livestock) and 10 percent for self-supplied industrial use. Compared to the nation, regional use of water for irrigation is extremely high. While the Region's total 1970 depletion of 23.6 million acre-feet of water represented only 6 percent of the total national depletion, regional irrigation depletions accounted for 14 percent of all the water withdrawn for irrigation in the nation.

Throughout much of the Region, surface water supplies are the primary source of water for irrigation as well as for the other three principal use categories. For example, 98 percent of the water withdrawn for use in Montana during 1970 came from Montana surface waters. Surface water accounted for 86 percent of North Dakota's total 1970 depletion, while 95 percent of Wyoming's 1970 depletion came from surface waters. However, some notable exceptions do exist. Both Nebraska and South Dakota relied more on their ground water resources during 1970 (accounting for 54.7 percent of Nebraska's total depletion and 57.9 percent of South Dakota's total depletion). While Nebraska has historically relied more heavily upon its ground water resources to satisfy its water requirements, 1970 was the only year of the three years (1960, 1965 and 1970) shown in Table IV-5 that ground water accounted for more than 50 percent of South Dakota's total depletion. This change in South Dakota's ratio of surface to ground water usage is a direct result of substantial increases in the State's use of ground water for rural and industrial purposes.

While industrial water usage within the Region is low in comparison to irrigation usage, Table IV-6 indicates that a significant increase in the

¹ Ibid, p. 8.

² Ibid, P. 8.

Table 1-6

INDUSTRIAL WATER USE BY STATE
1960, 1965, 1970
(thousands of acre-feet/year)

Utilization	Region			Montana			Nebraska			North Dakota			South Dakota			Wyoming			United States		
	1960	1965	1970	1960	1965	1970	1960	1965	1970	1960	1965	1970	1960	1965	1970	1960	1965	1970	1965	1970	
Self-Supplied Industrial Water																					
Thermoelectric Power	890	1,120	1,690	65	61	67	717	776	997	11	94	394	1	1	4	94	192	225	114,000	144,000	187,000
Other Industry	380	300	640	230	130	173	49	49	113	10	14	22	19	31	210	73	69	121	42,000	50,000	54,000
Total Self-Supplied	1,270	1,420	2,330	295	191	240	766	825	1,110	21	108	416	20	32	214	167	261	346	156,000	194,000	241,000
Public Supplied Industrial/ Commercial Water	130	150	120	21	30	36	35	90	52	2	3	2	6	17	21	13	11	15	7,000	9,000	10,000
Total Industrial Use	1,400	1,570	2,450	316	221	276	851	915	1,162	23	111	418	26	49	235	180	272	361	163,000	203,000	251,000

Source: U.S. Geological Survey, Estimated Use of Water in the United States (Geological Survey Circulars 456, 556, 676)
U.S. Department of the Interior.

amount of water used for industrial purposes occurred between 1965 and 1970 when compared with the rate of change between 1960 and 1965. Over the period 1965-1970, water use for industrial purposes increased 56 percent compared with only 12 percent over the 1960-1965 period. Nebraska, as the most industrialized State in the Region, accounted for over 47 percent of all the water used by the Region for industrial purposes during 1970, and North Dakota followed with 17 percent for industrial water usage. While South Dakota showed the lowest usage rate, the State experienced a 380 percent increase in industrial usage between 1965 and 1970. At the same time, the data indicates that Montana experienced a 14.4 percent reduction in industrial usage between 1960 and 1970.

Water for generating thermoelectric power was the single largest use of industrial water (see Table IV-6). In all, 1.6 million acre-feet of water was withdrawn (from both surface and ground water sources) in 1970 for use in generating thermoelectric power. This amount represented almost 70 percent of all the water withdrawn for industrial use in that year. Nebraska, as expected, is the largest user of water for thermoelectric power generation, accounting for 59 percent of the regional total.

Though withdrawals from existing water supplies are of primary concern, there are significant "in-channel" uses of the Region's surface water resources. For example, the Missouri River up to Sioux City, Iowa is open to commercial navigation.¹ Substantial quantities of surface water throughout the Region are also reserved for recreation, and the preservation of fish and wildlife. However, the primary in-channel use of water in the Region is for the generation of hydroelectric power.² Table IV-7 illustrates how much water was used in 1960, 1965 and 1970 for hydroelectric power generation on both a daily and an annual basis. In 1970, alone, over 200 million acre-feet of water were used to generate power. This usage rate represented a 105 percent increase over the 1960 rate. Much of the Region's hydroelectric power is generated by plants located along rivers in Montana, South Dakota and Nebraska. Montana alone utilized 80 million acre-feet (40 percent of the regional total) for power generation in 1970. During the period from 1960 to 1970, South Dakota experienced a significant increase in its use of water to generate power as its rate of usage rose from a level of 12 million acre-feet in 1960 to 66 million acre-feet in 1970.

4.3.3 Possible Constraints

While from the foregoing data it appears that the Old West Region

¹ Missouri River Basin Inter-Agency Committee, op. cit., p. 75.

² Ibid, p. 74.

Table IV-7

WATER USED "IN-CHANNEL" FOR HYDROELECTRIC POWER BY STATE
1960, 1965, 1970

Jurisdiction	(millions of gallons/day)			(thousands of acre-feet/year)		
	1960	1965	1970	1960	1965	1970
Region	88,200	147,900	180,500	97,700	165,600	200,200
Montana	46,000	75,000	72,000	51,000	84,000	80,000
Nebraska	19,000	21,000	29,000	21,000	24,000	32,000
North Dakota	7,700	18,000	14,000	8,600	20,000	15,000
South Dakota	11,000	28,000	59,000	12,000	31,000	66,000
Wyoming	4,500	5,900	6,500	5,100	6,600	7,200
United States	2,000,000	2,300,000	2,800,000	2,200,000	2,600,000	3,100,000

Source: U.S. Geological Survey, Estimated Use of Water in the United States (Geological Survey Circulars 456, 556, 676), U.S. Department of the Interior.

generally has had sufficient supplies of surface and ground water to meet its water requirements, this disguises the fact that various parts of the Region have been confronted by serious water problems. Occurrences of drought, for example, place a significant strain on available supplies of surface and ground water. Another problem confronting the Region is the rapidly increasing price of water. In some areas where demand for water is high, it is anticipated that prices might rise from the current 10 to 15 dollars an acre-foot to as much as 200 dollars an acre-foot. The rapid rise in water prices is being caused in large part by increased competition among principal water users (agriculture, industry, municipalities, etc.) for available supplies. Consequently, in some areas individual users (e.g., small farmers) are gradually being priced out of the market.¹

While the Region as a whole appears to have ample surface and ground water supplies², certain areas within the Region are currently considered to be "water short areas". These areas lack adequate supplies of water and, therefore must import water from other areas to meet all their water needs. The provision of water to these "water short" areas continues to be one of the more difficult water problems to resolve. Areas in the Region that are categorized as water short include parts of the Red River Valley as well as many areas in southwestern North Dakota; the southwestern section of South Dakota;³ parts of the Republican and Blue River basins of Nebraska (water supplies in these two areas change significantly from year to year due to substantial variations in flow and to limitations on withdrawals of water from these rivers imposed by interstate compacts); and parts of northwestern Nebraska and eastern Wyoming.⁴

While projects intending to divert water from water surplus areas to water short areas have been proposed, they have often met with strong opposition. Opponents of proposed water diversion projects have usually focused on two issues: how the water to be diverted will be used, and what effect the diversion will have on current users. For example, continuation of "The West River Study" to examine the feasibility of diverting water from the Main Stem Missouri westward into the southwestern section of North Dakota was rejected by the North Dakota State legislature in 1975. Although the

¹ Information concerning rising prices of water was obtained in interviews with the State Water Commissioners of North and South Dakota.

² For example, as of 1970 the upper Missouri River Basin still had an additional 9.9 million acre-feet available annually for use. Northern Great Plains Resource Program, "Water Work Group Report," December, 1974, p. 43.

³ Information from State Water Commissioners of North and South Dakota.

⁴ Information obtained during interview with an official of the Nebraska Soil and Water Conservation Commission.

water to be diverted was earmarked for a multiplicity of purposes, potential plans to use substantial quantities of water for coal development were strongly opposed.¹

A situation similar to the one in North Dakota presently exists in South Dakota as a result of two proposals to divert water from Lake Oahe. One project, on which construction work has already begun, involves the diversion of 400 thousand acre-feet of water from Oahe to the James River Valley for additional irrigation. The second project entails the construction of a water pipeline, capable of transporting 250 thousand acre-feet of water annually, westward to Wyoming. Opposition to the first project focuses on the potential effect the additional depletions of water could have on the fish and wildlife which inhabit the Oahe area and the influence of irrigation on grassland areas. Opponents have taken the issue to court in the hopes of halting further construction. On the other hand, opposition to the pipeline project is specifically directed toward one of the proposed uses for the diverted water. The primary purpose of this pipeline will be to provide that water required for a coal slurry pipeline to be constructed between Wyoming and Arkansas. While the proposed plan for the pipeline includes a provision for providing 24 jurisdictions with additional water supplies, opponents argue that the potential benefits do not outweigh the losses the State will experience with the exportation of such large quantities of water. State legislative opposition to the proposed pipeline was sufficiently strong in the last session to reject a motion for an appropriation of funds to conduct a joint Federal/State feasibility study. In addition, the State legislature passed a law prohibiting the diversion of more than 10 thousand acre-feet of water per year without prior legislative approval.²

Disputes such as these involving the distribution and allocation of available water are an intricate part of the Region's history. Over the years, laws have been established specifically to settle disputes concerning water rights. The concept of impounding or reserving quantities of water for specific purposes has evolved in an effort to conserve water and ensure a continual satisfactory supply. Products of this concept have been specific State laws, interstate agreements or compacts, and international treaties governing the use of rivers such as the Red, Souris and Kootenai Rivers. Each of these agreements has expressly limited the quantities of water which the participating jurisdictions can withdraw for their own use so as to assure (to the degree possible) that all the participants receive their "fair share".

4.4 Agriculture

As indicated in the foregoing, the major portion of both the Region's land and water resources are currently devoted either to farming or

¹ Information obtained during interview with two officials of the North Dakota State Water Commission.

² Information obtained during interview with an official of the South Dakota State Planning Office.

ranching activities. Few areas in the country, or for that matter the world, can equal the regional outputs of wheat and meat products. Even manufacturing and industrial operations are heavily oriented toward supporting the Region's agricultural sector, either producing machinery or other needed products or processing the farm outputs.

As of 1973 the amount of land committed to farming and ranching activities within the Region exceeded 233 million acres (see Table IV-8). This figure represents 78.5 percent of the Region's total land area. As indicated in Table IV-8 only a slight decline in the amount of farmland has occurred during the period between 1959 and 1973. This minimal fluctuation would seem to indicate that the Region's available farm and range lands are being utilized at near economic capacity. However, the Region has experienced a significant reduction in its total number of farms and ranches over the same period of time. The number of farms dropped from approximately 240 thousand in 1959 to 190 thousand in 1973, a reduction of 26.3 percent. This decrease, with no apparent reduction in land utilization, can primarily be attributed to two factors. First, the types of agricultural products (primarily wheat, corn and livestock) lend themselves to large tract farming and ranching operations with modern farm and ranching equipment and machinery. Second, a significant decline in the number of small or family farms has occurred in the Region as a result of a changing regional and national economy and changing social attitudes toward farming and ranching as an occupation. Evidence of the trend toward larger farms is clearly shown by the following comparisons. Between 1959 and 1973, 1) North Dakota, the Region's leader in wheat production, witnessed about a 24 percent decline in the number of farms with little change in land area in agricultural production; 2) Nebraska, the Region's leader in corn and livestock production had a reduction of 23 percent in the number of farms while the productive agricultural land area grew slightly; and 3) Montana saw its number of farms decrease by 13 percent while experiencing only a 2 percent reduction in farm land.

As indicated earlier, wheat and corn are the Region's two principal crops in terms of both production and value. (In 1973, 507 million bushels of wheat and 699 million bushels of corn were harvested.) Cash value of the regional wheat crop was \$2.2 billion while corn was \$1.6 billion. As shown in Table IV-9, North Dakota is, by far, the Region's largest wheat producer (accounting for 49.8 percent of the regional crop production in 1973) followed by Montana (19.1 percent), Nebraska (18.5 percent) and South Dakota (11.5 percent). Wyoming historically has had a small amount of wheat farming. Evidence of the importance of the Region's wheat crop is the fact that the regional output accounts for approximately 30 percent of the nation's annual harvest.

LAND IN FARMS
OLD WEST REGION
1959-1973

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Table IV-B (cont.)
LAND IN FARMS
OLD WEST REGION
1959-1973

	N E B R A S K A					N O R T H D A K O T A				
	1959	1964	1969	1973	Percentage Change 1959-1973	1959	1964	1969	1973	Percentage Change 1959-1973
<u>Farm Use</u> ¹										
Land in Farms, millions of acres	47.8	47.8	48.9	48.1	+ 0.6	41.5	42.7	43.1	41.7	+ 0.5
Number of Farms, thousands	90.5	80.2	72.3	70.0	- 22.7	54.9	48.8	46.4	42.0	- 23.5
Total Cropland, millions of acres	22.8	22.1	22.2	--	--	27.7	27.4	29.5	--	--
Harvested Cropland, millions of acres	18.1	15.2	14.0	17.5	- 3.3	19.4	17.7	17.2	19.8	+ 2.1
Unharvested Cropland, millions of acres	4.8	6.9	8.2	--	--	8.3	9.8	12.3	--	--
Irrigated Land, millions of acres	2.1	2.2	2.9	4.8	+ 128.6	N.S.	0.1	0.1	--	--
Dry Farmland, millions of acres ²	45.7	45.6	46.1	43.3	- 5.3	41.4	42.7	43.1	--	--
Rangeland and Pastureland, millions of acres	22.1	22.8	21.1	--	--	10.2	11.1	9.3	--	--

Table IV-8 (cont.)

LAND IN FARMS
OLD WEST REGION
1959-1973

	S O U T H D A K O T A					W Y O M I N G				
	1959	1964	1969	1973	Percentage Change 1959-1973	1959	1964	1969	1973	Percentage Change 1959-1973
¹ Farm Use										
Land in Farms, millions of acres	44.9	45.6	45.6	45.5	+ 1.3	36.2	37.1	35.5	35.5	- 1.9
Number of Farms, thousands	55.7	49.7	45.7	44.0	- 21.0	9.7	9.0	8.8	8.2	- 15.5
Total Cropland, millions of acres	19.2	18.7	19.8	--	--	2.6	2.8	2.8	--	--
Harvested Cropland, millions of acres	14.2	14.4	12.6	15.1	+ 6.3	1.7	1.7	1.7	1.8	+ 5.9
Unharvested Cropland, millions of acres	4.9	4.3	7.2	--	--	0.9	1.0	1.1	--	--
Irrigated Land, millions of acres	0.1	0.1	0.1	--	--	1.5	1.6	1.5	--	--
Dry Farmland, millions of acres	44.7	45.4	45.4	--	--	34.7	35.5	34.0	--	--
Rangeland and Pastureland, millions of acres	22.8	21.5	18.6	--	--	28.3	28.7	27.3	--	--

¹ Excludes farm woodlands.

² Farms with sales of \$2,500 or more.

N.S.: Not Significant

-- : Relevant or comparable data elements unavailable.

Source: Bureau of Census, U.S. Census of Agriculture 1964 and U.S. Census of Agriculture 1969, U.S. Department of Commerce.

Montana Crop and Livestock Reporting Service, Montana Agricultural Statistics, Montana Department of Agriculture, Helena, Montana 1974;

State-Federal Division of Agricultural Statistics, Nebraska Agricultural Statistics: Annual Report 1972-73, Nebraska Department of Agriculture, 1974;

North Dakota Crop and Livestock Reporting Service, North Dakota Crop and Livestock Statistics 1973. U.S. Department of Agriculture Statistical Reporting Service and North Dakota State University of Agriculture and Applied Science, May 1974.

South Dakota Livestock and Reporting Service, South Dakota Agricultural Statistics, 1973, U.S. Department of Agriculture and South Dakota Department of Agriculture, May, 1974.

Wyoming Crop and Livestock Reporting Service, Wyoming Agricultural Statistics, Wyoming Department of Agriculture, The University of Wyoming and U.S. Department of Agriculture, 1974.

Table IV-9

MAJOR CROPS, LIVESTOCK AND POULTRY PRODUCTION
GOLD WEST REGION
1959, 1964, 1969 and 1973

	R E G I O N										M O N T A N A			
	1959		1964		1969		1973		Percent of		1959	1964	1969	1973
	Total	Percent of Nation	Total	Percent of Nation	Total	Percent of Nation	Total	Percent of Nation	Total	Percent of Nation	1959	1964	1969	1973
<u>Crops, Livestock, Poultry</u>														
<u>Corn</u>														
Millions of Bushels	379.9	10.3	282.2	8.4	529.0	11.9	699.2	12.4			0.1	0.2	0.4	0.8
Value in Millions	\$473.7	10.8	\$425.6	9.2	\$678.9	11.6	\$1559.8	11.6			\$ 4.4	\$ 4.9	\$ 7.2	\$ 2.1
Scraps ^{1,2}														
Millions of Bushels	63.1	12.4	36.1	20.8	114.3	16.8	151.4	16.2			N.S.	N.S.	N.S.	N.S.
Value in Millions	\$ 61.0	10.6	\$114.8	17.0	\$127.2	14.6	\$301.6	15.1			N.S.	N.S.	\$ 0.1	N.S.
<u>Wheat Harvested</u>														
Millions of Bushels	253.1	24.0	339.6	27.9	412.0	31.0	506.8	29.6			70.9	87.6	94.3	96.7
Value in Millions	\$456.6	24.4	\$461.8	27.6	\$528.9	32.4	\$2221.1	32.5			\$117.4	\$111.3	\$113.6	\$415.9
<u>Other Grains Harvested</u>														
Value in Millions	\$219.7	16.3	\$276.7	20.4	\$361.8	24.1	\$746.5	42.7			\$ 38.0	\$ 42.1	\$ 56.9	\$145.1
<u>Soybeans Harvested</u>														
Millions of Bushels	7.3	1.4	17.7	2.6	28.7	2.8	51.7	3.3			0	0	0	N.S.
Value in Millions	\$ 13.6	1.3	\$ 45.1	2.5	\$ 63.3	2.6	\$276.1	3.2			0	0	0	N.S.
<u>Hay Harvested</u>														
Millions of Tons	16.9	15.2	19.8	16.7	22.2	17.4	23.2	17.2			3.0	3.4	3.9	4.1
Value in Millions	\$322.7	13.9	\$392.7	14.0	\$443.8	14.9	\$863.6	17.2			\$ 69.8	\$ 74.4	\$ 93.2	\$233.7
<u>Other Crops Harvested</u>														
Value in Millions	\$ 83.6	--	\$128.3	--	\$ 68.1	--	\$288.2	--			\$ 13.4	\$ 22.8	\$ 8.6	\$ 74.2
<u>All Crops Value³</u>														
Harvested, in Millions	\$1630.9	8.5	\$1845.0	8.4	\$2272.0	9.6	\$6256.9	10.6			\$243.0	\$255.5	\$279.6	\$871.0
Sold, in Millions ⁴	\$ 945.3	--	\$1093.0	6.7	\$1456.9	8.6	\$3668.2	9.6			\$160.7	\$171.6	\$189.4	\$510.1
<u>Livestock and Poultry Value</u>														
Sold, in Millions	\$1772.4	--	\$1978.3	10.5	\$3237.7	11.3	\$4968.4	11.0			\$215.1	\$216.7	\$384.9	\$564.0
<u>All Products Value^{3,4}</u>														
Sold, in Millions	\$2719.6	8.9	\$3074.8	8.7	\$4696.4	10.3	\$8631.6	10.3			\$377.4	\$389.7	\$575.8	\$1074.1

Table IV-9 (cont.)
MAJOR CROPS, LIVESTOCK AND POULTRY PRODUCTION
OLD WEST REGION
1959, 1964, 1969 and 1973

	NEBRASKA					NORTH DAKOTA				
	1959	1964	1969	1973	Percentage Change 1959-1973	1959	1964	1969	1973	Percentage Change 1959-1973
<u>Crops, Livestock, Poultry</u>										
<u>Corn</u> ¹										
Millions of Bushels	310.2	198.7	402.6	544.0	+ 75.4					
Value in Millions	\$388.6	\$261.6	\$481.0	\$1224.1	--	6.8	5.4	7.3	10.1	+ 48.5
						\$ 28.1	\$ 27.1	\$ 21.1	\$ 22.2	- 21.0
<u>Sorghum</u> ^{1,2}										
Millions of Bushels	59.9	88.6	105.7	140.1	+ 133.9	N.S.	N.S.	0.1	--	--
Value in Millions	\$ 54.5	\$101.4	\$113.6	\$278.8	--	\$ 0.2	\$ 0.4	\$ 0.4	--	--
<u>Wheat Harvested</u>										
Millions of Bushels	64.9	64.6	71.8	93.8	+ 44.5	94.8	146.5	202.2	252.5	+ 166.4
Value in Millions	\$114.9	\$ 87.2	\$ 81.2	\$342.4	+ 198.0	\$183.3	\$206.5	\$276.9	\$1211.9	+ 561.2
<u>Other Grains Harvested</u>										
Value in Millions	\$ 27.4	\$ 15.3	\$ 17.5	\$ 30.2	+ 10.2	\$110.2	\$154.1	\$187.8	\$360.3	+ 227.0
<u>Soybeans Harvested</u>										
Millions of Bushels	3.4	11.0	20.6	36.3	+ 967.6	2.4	2.6	3.1	5.5	+ 129.2
Value in Millions	\$ 6.4	\$ 28.0	\$ 45.4	\$192.4	+2096.3	\$ 4.4	\$ 6.7	\$ 6.9	\$ 29.0	+ 559.1
<u>Hay Harvested</u>										
Millions of Tons	6.1	6.0	7.0	7.6	+ 24.6	3.0	4.3	4.1	4.1	+ 36.7
Value in Millions	\$ 90.9	\$120.3	\$142.5	\$243.8	+ 168.2	\$ 60.0	\$ 76.1	\$ 62.9	\$131.5	+ 119.2
<u>Other Crops Harvested</u>										
Value in Millions	\$ 32.5	\$ 38.8	\$ 9.3	\$ 80.2	+ 146.8	\$ 21.0	\$ 39.6	\$ 37.1	\$ 95.1	+ 352.9
<u>All Crops Value</u> ³										
Harvested, in Millions	\$665.2	\$652.6	\$990.5	\$2391.9	+ 259.6	\$407.2	\$510.5	\$593.1	\$1850.0	+ 354.3
Sold, in Millions ⁴	\$393.2	\$371.4	\$536.3	\$1346.4	+ 242.4	\$278.2	\$374.1	\$480.5	\$1277.4	+ 359.2
<u>Livestock and Poultry Value</u>										
Sold, in Millions ⁴	\$804.2	\$962.7	\$1628.5	\$2385.3	+ 196.6	\$190.5	\$196.2	\$268.3	\$460.1	+ 141.5
<u>All Products Value</u> ^{3,4}										
Sold, in Millions	\$1197.5	\$1334.4	\$2164.9	\$3731.6	+ 211.6	\$468.7	\$570.5	\$748.9	\$1737.5	+ 270.7

Table IV-9 (cont.)
MAJOR CROPS, LIVESTOCK AND POULTRY PRODUCTION
OLD WEST REGION
1959, 1964, 1969 and 1973

	SOUTH DAKOTA					WYOMING				
	1959	1964	1969	1973	Percentage Change 1959-1973	1959	1964	1969	1973	Percentage Change 1959-1973
<u>Crops, Livestock, Poultry</u>										
<u>Corn</u> ¹										
Millions of Bushels	61.6	77.1	117.2	142.0	+ 130.5	1.2	0.8	1.5	2.2	+ 83.3
Value in Millions	\$ 99.1	\$ 128.2	\$ 162.3	\$ 305.3	--	\$ 3.5	\$ 3.8	\$ 7.3	\$ 6.1	--
<u>Sorghum</u> ^{1,2}										
Millions of Bushels	3.2	7.5	8.5	11.3	+ 253.1	N.S.	N.S.	N.S.	--	--
Value in Millions	\$ 6.2	\$ 12.9	\$ 12.9	\$ 22.8	--	\$ 0.1	\$ 0.1	\$ 0.2	--	--
<u>Wheat Harvested</u>										
Millions of Bushels	17.2	36.3	38.9	58.3	+ 239.0	5.3	4.6	4.8	5.5	+ 3.8
Value in Millions	\$ 32.2	\$ 51.0	\$ 52.1	\$ 227.4	+ 606.2	\$ 8.8	\$ 5.8	\$ 5.1	\$ 23.6	+ 168.2
<u>Other Grains Harvested</u>										
Value in Millions	\$ 39.0	\$ 59.6	\$ 91.7	\$ 194.6	+ 399.0	\$ 5.1	\$ 5.6	\$ 7.9	\$ 16.2	+ 217.6
<u>Soybeans Harvested</u>										
Millions of Bushels	1.5	4.1	5.0	9.9	+ 560.0	0	0	0	--	--
Value in Millions	\$ 2.8	\$ 10.4	\$ 11.0	\$ 54.7	+1853.6	0	0	0	--	--
<u>Hay Harvested</u>										
Millions of Tons	3.4	4.5	5.5	5.5	+ 61.8	1.4	1.6	1.7	1.9	+ 35.7
Value in Millions	\$ 70.4	\$ 88.1	\$ 104.9	\$ 170.7	+ 142.5	\$ 31.6	\$ 33.8	\$ 40.3	\$ 83.9	+ 165.5
<u>Other Crops Harvested</u>										
Value in Millions	\$ 2.3	\$ 9.6	\$ 1.4	\$ 8.5	+ 269.6	\$ 14.4	\$ 17.5	\$ 11.7	\$ 30.2	+ 109.7
<u>All Crops Value</u>										
Harvested, in Millions	\$252.0	\$359.8	\$436.3	\$984.0	+ 290.5	\$ 63.5	\$ 66.6	\$ 72.5	\$160.0	+ 152.0
Sold, in Millions ⁴	\$ 82.3	\$145.2	\$212.6	\$468.0	+ 468.7	\$ 30.9	\$ 30.7	\$ 38.1	\$ 66.3	+ 114.6
<u>Livestock and Poultry Value</u>										
Sold, in Millions ⁴	\$431.5	\$483.2	\$745.3	\$1231.0	+ 185.3	\$131.1	\$119.5	\$210.7	\$323.0	+ 146.4
<u>All Products Value</u> ^{3,4}										
Sold, in Millions	\$513.9	\$628.8	\$958.0	\$1699.0	+ 230.6	\$162.1	\$151.4	\$248.8	\$389.4	+140.2

Note: Where data not shown (--), relevant or comparable data elements were not available.
N.S.: Amount produced or value of production not significant.

- ¹ Volumes shown are harvested as grain. Values shown are for grain harvested in 1973; in all other years values are for grains and cuts for silage, forage and fodder.
- ² Harvested excludes that for syrup purposes in 1959, 1964, and 1969.
- ³ Includes forest products from farms.
- ⁴ Farm cash income in 1973.

Source: 1) Bureau of Census, U.S. Census of Agriculture 1964 and U.S. Census of Agriculture 1969, U.S. Department of Commerce.
2) Montana Crop and Livestock Reporting Service, Montana Agricultural Statistics, Montana Department of Agriculture, Helena, Montana 1974;
3) State-Federal Division of Agricultural Statistics, Nebraska Agricultural Statistics: Annual Report 1972-73, Nebraska Department of Agriculture, 1974.
4) North Dakota Crop and Livestock Reporting Service, North Dakota Crop and Livestock Statistics 1973, U.S. Department of Agriculture Statistical Reporting Service and North Dakota State University of Agriculture and Applied Science, May 1974.
5) South Dakota Livestock and Reporting Service, South Dakota Agricultural Statistics, 1973, U.S. Department of Agriculture and South Dakota Department of Agriculture, May, 1974.
6) Wyoming Crop and Livestock Reporting Service, Wyoming Agricultural Statistics, Wyoming Department of Agriculture, The University of Wyoming and U.S. Department of Agriculture, 1974.

Nebraska is the Region's leader in the amount of corn harvested. In 1973, Nebraska accounted for 77.8 percent of the total regional output, producing 544 million bushels of corn. Of the other four States, only South Dakota has had a substantial corn harvest. South Dakota's 1973 output of 142 million bushels accounted for 20.3 percent of the regional total. In fact, the combined outputs of Nebraska and South Dakota during 1973 accounted for 98.1 percent of the total regional corn output.

Hay, sorghum and other grains, and soybeans are the Region's other major crops based upon the production figures displayed in Table IV-9. Except for "other grains", Nebraska is the regional leader in the production of these crops, accounting for about 33 percent of the Region's hay production, 93 percent of the Region's sorghum output, and 70 percent of the Region's soybean production in 1973.

Production outputs for all of the Region's principal crops have substantially increased during the fourteen year period 1959-1973. For example, wheat production rose approximately 100 percent during the fourteen year period, while corn outputs increased by 84 percent. The most significant increases, however, were in the production and value of sorghum and soybeans. Sorghum production experienced a 140 percent increase, and soybean outputs increased by over 600 percent between 1959 and 1973.

More important to the Region's farmers were the corresponding increases in the market values of their crops. The market value of a bushel of wheat, for example, rose from about \$1.80 in 1959 to \$4.38 in 1973. Similarly, corn prices rose from the 1959 rate of \$1.25 per bushel to \$2.23 per bushel in 1973. Of most significance are the price increases for such commodities that have occurred just within the last few years. Between 1969 and 1973 wheat prices experienced a 242 percent increase (\$1.28/bushel in 1969 to \$4.38/bushel in 1973), while corn prices increased by 78.4 percent (\$1.28/bushel to \$2.23/bushel) over the same period. It is apparent that prices can fluctuate greatly from year-to-year as a result of one or a combination of factors, and it is essential to emphasize that these significant increases or decreases over relatively short periods of time, have a large impact on the economic well-being of the entire Old West Region. Also, the farm earnings and income of the Region are very sensitive to the recent national problems of inflation and adequate energy supplies, resulting in soaring costs of farm operation.

While crop production is an important part of the Region's agricultural output, the raising of livestock (i.e., largely cattle, but some sheep and hogs) accounts for a major portion of the agricultural economy. However, it should be pointed out that a substantial amount of the Region's crop production is used for livestock and poultry feed. As indicated in Table IV-9, the value of all livestock and poultry sold in 1973 was estimated at \$5 billion, or \$1.3 billion higher than the total value of all

crops sold. The value of livestock and poultry production sold in 1973 was highest in Nebraska, amounting to about \$2.4 billion or only slightly less than one-half of the regional total. The majority of calves raised in Montana, North Dakota, South Dakota and Wyoming are shipped to Nebraska and Iowa for fattening and slaughtering, due to the more temperate climates and the abundance of feed in these two States.

The market value of livestock and poultry sold has increased substantially in recent years. Market values for all livestock and poultry sold (see Table IV-9) have risen over 180 percent between 1959 and 1973. A 53 percent increase in market values occurred between 1969 and 1973, alone. However, it should again be noted that inflation and increased operating costs must be taken into account in assessing the impact of these increases on the Region's economy.

Regional farm and ranch assets as displayed in Table IV-10, reflect several important points. For example, the average value of the land and buildings per farm (or ranch) in the predominantly cattle raising states of Montana and Wyoming was 150 thousand and 163 thousand dollars, respectively, as of 1969. These figures compare with a regional average of 101 thousand dollars per farm, and farm values of 98, 87 and 83 thousand dollars for Nebraska, North and South Dakota, respectively. This statistic reflects the larger average size of farms and ranches in Montana and Wyoming in comparison with the three crop-oriented States. Similarly, the average 1969 value of all capital assets per farm (or ranch) in Montana and Wyoming (167 and 177 thousand dollars, respectively) is considerably higher than the average value per farm in Nebraska, North and South Dakota (110, 105 and 96 thousand dollars, respectively).

4.5 Forestry

In contrast to agriculture, the timber industry accounts for a relatively small portion of the regional economy. The largest percentage of the Region's commercially productive forest land lies in Montana. As indicated in Table IV-11, Montana's 16.0 million acres of commercial forest land account for 69 percent of the Region's total potential commercial timber producing area of 23.1 million acres. Of the remaining 31 percent, Wyoming accounts for 18 percent, while South Dakota and Nebraska account for about 7 and 4 percent, respectively. All in all, the Region contains less than 5 percent of the nation's commercially productive forest land area.

The Region's total actual timber output also represents a small portion of the national production. The Region's total production value in

Table IV-10
FARM AND RANCH ASSETS
OLD WEST REGION
1969

	Region						
	Total	Percent of Nation	Montana	Nebraska	North Dakota	South Dakota	Wyoming
<u>Land and Buildings</u>							
Value in millions	\$20,130.0	9.7	\$ 3,748.2	\$ 7,076.2	\$ 4,045.5	\$ 3,814.8	\$ 1,445.3
Value per farm, in thousands	\$ 101.6	132.9	\$ 150.2	\$ 97.9	\$ 87.2	\$ 83.4	\$ 163.5
<u>Machinery and Equipment</u>							
Value in millions	\$ 2,886.2	10.8	\$ 421.2	\$ 928.7	\$ 829.2	\$ 587.7	\$ 119.4
Value per farm, in thousands	\$ 14.6	148.3	\$ 16.9	\$ 12.9	\$ 17.9	\$ 12.9	\$ 13.5
Total							
Value in millions	\$23,016.2	9.9	\$ 4,169.4	\$ 8,004.9	\$ 4,874.7	\$ 4,402.5	\$ 1,564.7
Value per farm, in thousands	\$ 116.1	135.6	\$ 167.1	\$ 110.8	\$ 105.1	\$ 96.3	\$ 177.0

Source: Bureau of Census, U.S. Census of Agriculture 1969, U.S. Department of Commerce.

Economic Research Service, "Balance Sheet of the Farming Sector 1974," U.S. Department of Agriculture, 1974.

Table IV-11

TIMBER SUPPLY
FOREST LAND, AND PRODUCTION
OLD WEST REGION
1970

	Region	Montana	Nebraska	North Dakota	South Dakota	Wyoming	Region as Percent of United States
Land (in thousands of acres)							
Forest							
Total	36,062	22,777	1,045	422	1,733	10,085	4.8
Commercial ¹	23,127	15,983	1,023	406	1,533	4,182	4.6
Productive Reserved	4,132	1,390	13	3	15	2,711	24.0
Unproductive	8,036	4,763	8	12	184	3,069	3.4
Non-Forest	261,220	70,399	47,409	43,914	46,878	52,125	-

Saw Timber

Supply²

Mature Stock (millions of board feet) ³	124,720	102,018	1,991	563	3,783	16,365	5.2
Growing Stock (millions of cubic feet)	35,215	28,650	507	276	1,109	4,673	5.4
Production							
Volume (millions of cubic feet)	339.2	279.6	8.1	1.3	16.5	33.7	2.9
Volume Change 1962-1970	+18.3%	+45.5%	-86.3%	-26.4%	+12.5%	+76.6%	-
Value (thousands of dollars)	\$125,500	\$108,950	\$2,950	\$ 250	\$3,700	\$9,650	3.0

- 1 Commercial defined as public and private land available and suitable for growing continuous crops (at least 20 cubic feet per year) of timber or saw logs.
- 2 Net volume on commercial land.
- 3 Board feet determined using 1 1/4-inch rule. Generally to be counted softwoods must be at least 9-inches in diameter and hardwoods must be 11-inches in diameter.

Source: (1) Bureau of the Census, Statistical Abstract of the United States: 1974. (95th edition.) U.S. Government Printing Office, Washington, D.C., 1974.
 (2) Forest Service, The Outlook for Timber in the United States, Forest Resource Report No. 20, U.S. Dept. of Agriculture, Washington, D.C., 1974.
 (3) A. Green and T. Setzer, The Rocky Mountain Timber Situation, 1970. Forest Service, U.S. Dept. of Agriculture, Washington, D.C., 1974.
 (4) R. Phelps and D. Hain, The Demand and Price Situation for Forest Products, 1973-74. Forest Service, U.S. Dept. of Agriculture, Washington, D.C., 1974.

1970 was about \$126 million and was 339 million cubic feet of saw timber, or less than 3 percent of the nation's total 1970 production. In 1970, Montana was the Region's leading producer of timber products, accounting for 82.4 percent of the regional saw timber output. It should be noted that Wyoming did experience a significant increase (76.6 percent) in production output between 1962 and 1970. However, in terms of total 1970 output Wyoming still accounted for only 9.9 percent of the regional total.

In assessing the future potential of the Region's timber industry, it is doubtful whether any significant increases in production will occur. As of 1970, the Region's total available supply (mature and growing stock) of timber represented only about 5 percent of the national total. On the other hand, existing supplies appear to be adequate in relation to current levels of harvesting and Montana, particularly West Montana, should continue to derive revenues (the value of Montana's 1970 saw timber production was almost \$110 million) from its timber operations. However, given the relatively small existing base of activity, over at least the next 5 to 10 years the Region's timber industry is unlikely to change so dramatically as to have a substantial impact on the overall regional economy.

4.6 Mining

Mining operations, while historically contributing considerably more than forestry, have played a lesser role in the regional economy when compared to agricultural activities. In the more distant past, gold and to a lesser extent silver from mines located in South Dakota and Montana were the Region's major contributions to the nation's mineral output. However, in recent years, the Region's energy resources have begun to make a more appreciable contribution to the economy as the search for additional energy sources has intensified.

Between 1951 and 1961 the value of mineral production (see Table IV-12) in the Old West Region rose from about \$386 million to \$885 million (or an increase of 29 percent), in 1971 the output was valued at about \$1.24 billion (or 40 percent higher than 1961), and in 1974 the value of production was estimated at \$2.53 billion (or an increase of 104 percent in only three years). In 1974, the value of mineral production in Wyoming was about \$1.55 billion or 61 percent of the regional total, whereas Montana accounted for about \$0.58 billion or 23 percent of the regional value of mineral output. Consequently, mineral production in these two States, but especially Wyoming, play a very significant role in economic change and development.

Table IV-12 illustrates the increases which have occurred in the production of fuel or energy resources within the Region over the past twenty-five years. Of the Region's recoverable fuel resources, coal mining operations have made the most substantial advances. Within the last three to four years alone regional production levels have almost doubled. Whereas regional coal outputs accounted for less than 4 percent of the national total in 1971, regional outputs in 1974 represented 7 percent of the total national output. At present, the principal coal fields are located in the

Table IV-12

MINERAL PRODUCTION
OLD WEST REGION
1951-1974

	R E G I O N								M O N T A N A					
	1951		1961		1971		1974		Percent Change 1951-1974	1951	1961	1971	1974	Percent Change 1951-1974
	Total	Percent of Nation	Total	Percent of Nation	Total	Percent of Nation	Total	Percent of Nation						
Sand and Gravel (million short tons)	26.4	6.7	52.2	6.9	63.7	6.9	49.2	5.4	+86.4	9.5	14.7	15.8	9.4	-1.1
Value (\$ million)	\$16.0	4.8	\$41.9	5.6	\$72.1	6.3	\$70.1	4.8	+338.1	\$6.2	\$13.5	\$25.2	\$11.0	+77.4
Stone (millions of short tons)	5.0	1.8	10.5	1.7	---	---	14.9	1.5	+198.0	0.9 ¹	1.5	(D)	4.8	+433.3
Value (\$ million)	\$9.2	2.1	\$18.0	1.9	---	---	\$41.8	2.2	+354.3	\$1.0 ¹	\$1.8	(D)	\$9.7	+870.0
Coal (million short tons) ²	11.9	2.1	5.6	1.3	21.3	3.8	41.5	7.0	+248.7	2.3	0.4	7.1	14.1	+513.0
Value (\$ million) ²	\$41.0	1.4	\$16.0	0.8	\$51.7	1.3	\$198.0	2.2	+382.9	\$6.2	\$1.2	\$12.8	\$63.4	+922.6
Crude Petroleum (million 42 gal. barrels)	80.5	3.6	220.3	8.4	214.7	6.2	209.4	6.5	+160.1	9.0	30.1	34.6	35.1	+290.0
Value (\$ million)	\$176.3	3.1	---	---	\$668.6	5.7	\$1365.4	6.2	+674.5	\$22.1	\$74.8	\$104.1	\$202.9	+818.1
Natural Gas (billion cubic feet)	112.3	1.5	264.4	2.0	450.2	2.0	344.5	1.6	+206.8	36.4	33.9	32.7	53.8	+47.8
Value (\$ million)	\$7.9	1.5	\$31.9	1.6	\$68.5	1.7	\$91.2	1.4	+1,054.4	\$2.0	\$2.5	\$4.0	\$17.6	+780.0
Natural Gas Liquids (million 42 gal. barrels)	2.3	1.1	---	---	---	---	---	---	---	0.3	---	(D)	(D)	---
Value (\$ million)	\$6.0	1.2	---	---	---	---	---	---	---	\$0.9	---	(D)	(D)	---
Copper (thousand short tons) ³	57.4	6.2	104.0	8.9	88.6	5.8	137.8	8.7	+140.1	57.4	104.0	88.6	137.8	+140.1
Value (\$ million)	\$27.8	6.2	\$62.4	8.9	\$92.1	5.8	\$212.6	8.5	+664.7	\$27.8	\$62.4	\$92.1	\$212.6	+664.7
Lead (thousand short tons) ³	21.3	5.5	2.6	1.0	0.6	0.1	0.1	0.0	-99.5	21.3	2.6	0.6	0.1	-99.5
Value (\$ million)	\$7.3	5.4	\$0.5	0.9	\$0.2	0.1	\$0.1	0.0	-98.6	\$7.3	\$0.5	\$0.2	\$0.1	-98.6
Mercury (thousand short tons)	---	---	1565.4	19.6	---	---	---	---	---	---	0.7 ³	---	---	---
Value (\$ million)	---	---	\$28.7	19.4	---	---	---	---	---	---	N.S.	---	---	---
Zinc (thousand short tons) ⁴	85.6	12.6	10.3	2.2	0.4	0.1	0.1	0.0	-99.9	85.6	10.3	0.4	0.1	-99.5
Value (\$ million)	\$31.4	12.6	\$2.4	2.2	\$0.1	0.1	\$0.1	0.0	-99.7	\$31.4	\$2.4	\$0.1	\$0.1	-99.7
Gold (thousands troy ounces) ³	488.6	28.7	593.3	39.6	529.0	35.3	371.7	33.8	-23.9	30.5	35.4	15.6	27.9	-8.5
Value (\$ million)	\$17.1	28.1	\$20.7	38.2	\$21.8	35.3	\$59.9	33.1	+250.3	\$1.1	\$1.2	\$0.6	\$4.5	+309.1
Silver (million troy ounces) ³	6.5	16.4	3.6	10.3	2.8	6.7	3.7	10.9	-43.1	6.4	3.5	2.7	3.6	-43.8
Value (\$ million)	\$5.9	16.4	\$3.3	10.2	\$4.4	6.8	\$17.1	10.7	+189.8	\$5.8	\$3.2	\$4.2	\$16.8	+189.7
Others Value in millions	\$49.7	---	\$113.5	---	\$199.7	---	\$468.8	---	+1,051.8	\$14.4	\$20.7	\$41.8	\$37.4	+143.0
Total Value in millions	\$388.4	2.9	\$884.7	4.9	\$1240.0	4.0	\$2525.1	4.6	+553.5	\$126.2	\$184.2	\$285.1	\$576.1	+356.5

Table IV-12 (cont.)

MINERAL PRODUCTION
OLD WEST REGION
1951-1974

	NEBRASKA					NORTH DAKOTA				
	1951	1961	1971	1974	Percent Change 1951-1974	1951	1961	1971	1974	Percent Change 1951-1974
Sand and Gravel (million short tons)	5.0	10.1	13.2	14.3	+186.0	4.6	9.4	8.2	4.8	+4.3
Value (\$ million)	\$3.5	\$8.2	\$13.6	\$18.5	+428.6	\$2.1	\$7.5	\$6.2	\$5.3	+152.4
Stone (millions of short tons)	0.9 ¹	3.6 ¹	4.2	4.6	+411.1	0.3	N.S.	(D)	(D)	---
Value (\$ million)	\$1.4 ¹	\$6.3 ¹	\$7.9	\$10.9	+678.6	\$0.2	N.S.	(D)	(D)	---
Coal ² (million short tons)	0.0	0.0	0.0	0.0	0.0	3.2	2.7	6.1	8.5	+165.6
Value (\$ million)	0.0	0.0	0.0	0.0	0.0	\$7.8	\$6.1	\$11.6	\$21.3	+173.1
Crude Petroleum (million 42 gal. barrels)	2.6	24.4	10.1	6.6	+153.8	N.S.	23.7	21.7	19.5	---
Value (\$ million)	\$6.0	\$69.5	\$34.0	\$44.2	+636.7	(D)	\$64.3	\$70.8	\$132.6	---
Natural Gas (billion cubic feet)	3.9	15.7	3.5	4.6	+ 17.9	0.5	20.1	33.9	29.9	+5880.0
Value (\$ million)	\$0.5	\$2.6	\$0.6	\$1.1	+120.0	N.S.	\$2.5	\$5.7	\$8.2	---
Natural Gas Liquids (million 42 gal. barrels)	---	(D)	---	(D)	---	---	(D)	---(D)	---(D)	---
Value in millions	---	(D)	---	(D)	---	---	(D)	---(D)	---(D)	---
Copper (thousand short tons) ³	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Lead (thousand short tons) ³	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Uranium (thousand short tons)	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Zinc (thousand short tons) ³	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Gold (thousand troy ounces) ³	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Silver (million troy ounces) ³	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Others Value in millions	\$7.1	\$18.8	\$18.0	\$24.6	+247.1	\$0.1	\$4.5	\$5.6	\$12.2	+12,100.0
Total Value in millions	\$18.5	\$105.4	\$74.1	\$99.3	+436.8	\$0.2	\$84.9	\$99.9	\$179.6	1660.8

Table IV-12 (cont.)

MINERAL PRODUCTION
OLD WEST REGION
1951-1974

	SOUTH DAKOTA					WYOMING				
	1951	1961	1971	1974	Percent Change 1951-1974	1951	1961	1971	1974	Percent Change 1951-1974
Sand and Gravel (million short tons)	5.0	11.3	16.7	14.7	+194.0	2.3	6.7	9.8	6.0	+160.9
Value (\$ million)	\$2.5	\$7.3	\$18.4	\$24.0	+860.0	\$1.7	\$5.4	\$8.7	\$11.3	+564.7
Stone (millions of short tons)	1.3 ¹	2.8	2.2	2.5	+92.3	1.6 ⁶	2.6 ⁶	2.9	3.0	+87.5
Value (\$ million)	\$4.7 ¹	\$6.6	\$8.9	\$14.4	+206.4	\$1.9 ⁶	\$3.3 ⁶	\$4.8	\$6.8	+257.9
Coal (million short tons) ²	N.S.	N.S.	---	---	---	6.4	2.5	8.1	18.9	+195.3
Value (\$ million) ²	\$0.1	\$0.1	---	---	---	\$26.9	\$8.6	\$27.3	\$113.3	+321.2
Crude Petroleum (million 42 gal. barrels)	---	0.2	0.2	0.4	---	68.9	141.9	148.1	147.8	+114.5
Value (\$ million)	---	(D)	\$0.6	\$2.7	---	\$148.2	\$354.8	\$459.1	\$983.0	+563.3
Natural Gas (billion cubic feet)	N.S.	---	---	---	---	71.5	194.7	380.1	256.2	+258.3
Value (\$ million)	N.S.	---	---	---	---	\$5.4	\$24.3	\$58.2	\$64.3	+1090.7
Natural Gas Liquids (million 42 gal. barrels)	---	---	---	---	---	2.0	5.0	8.0	9.7	+385.0
Value (\$ million)	---	---	---	---	---	\$5.1	\$10.2	\$17.5	\$60.3	+1082.4
Copper (thousand short tons) ³	---	---	---	---	---	---	N.S.	---	---	---
Value (\$ million)	---	---	---	---	---	---	N.S.	---	---	---
Lead (thousand short tons) ³	N.S.	N.S.	---	---	---	---	---	---	---	---
Value (\$ million)	N.S.	N.S.	---	---	---	---	---	---	---	---
Uranium (thousand short tons)	---	43.6 ⁶	(D)	---	---	---	1521.1 ⁶	3.5	(D)	---
Value (\$ million)	---	\$0.5	(D)	---	---	---	\$28.2 ⁶	\$43.3	(D)	---
Zinc (thousand short tons) ³	---	---	---	---	---	---	---	---	---	---
Value (\$ million)	---	---	---	---	---	---	---	---	---	---
Gold (thousands troy ounces) ³	458.1	557.9	513.4	343.8	-25.0	N.S.	N.S.	---	---	---
Value (\$ million)	\$16.0	\$19.5	\$21.2	\$55.4	+246.3	N.S.	N.S.	---	---	---
Silver (million troy ounces) ³	0.1	0.1	0.1	0.1	+0.0	N.S.	N.S.	---	---	---
Value (\$ million)	\$0.1	\$0.1	\$0.2	\$0.3	+200.0	N.S.	N.S.	---	---	---
Others Value in millions	\$6.3	\$9.9	\$13.7	\$20.7	+502.9	\$12.6	\$31.4	\$99.0	\$313.6	+4234.8
Total Value in millions	\$29.7	\$44.0	\$63.0	\$117.5	+295.6	\$201.8	\$466.2	\$717.9	\$1552.6	+669.4

Note: N.S. - Production or value not significant.

(D) - Data not available due to problems of disclosure.

¹ Except limestone for cement and lime.² Bituminous and lignite.³ Weight and value based on recoverable content of ores.⁴ Included in others.⁵ Except limestone for cement.⁶ In the form of ores.

Source: Bureau of Mines, Minerals Yearbook 1952, 1962, 1972, U.S. Dept of Interior; Bureau of Mines Mineral Industry Surveys, U.S. Dept. of Interior, 1974; Bureau of Mines, Commodity Data Summaries 1975, U.S. Dept. of Interior, 1975.

the Fort Union area which covers parts of Wyoming, Montana, and North Dakota (see Figure IV-6). While some coal deposits have been discovered in South Dakota, estimates of the costs involved in extracting this coal make it unlikely that significant coal mining activity will occur in this State for the foreseeable future. Of the three coal producing States, Wyoming currently leads in total production, accounting for about 46 percent of the Region's total output in 1974. Montana with 34 percent of the total regional output is second, followed by North Dakota with 21 percent of the Region's 1974 production.

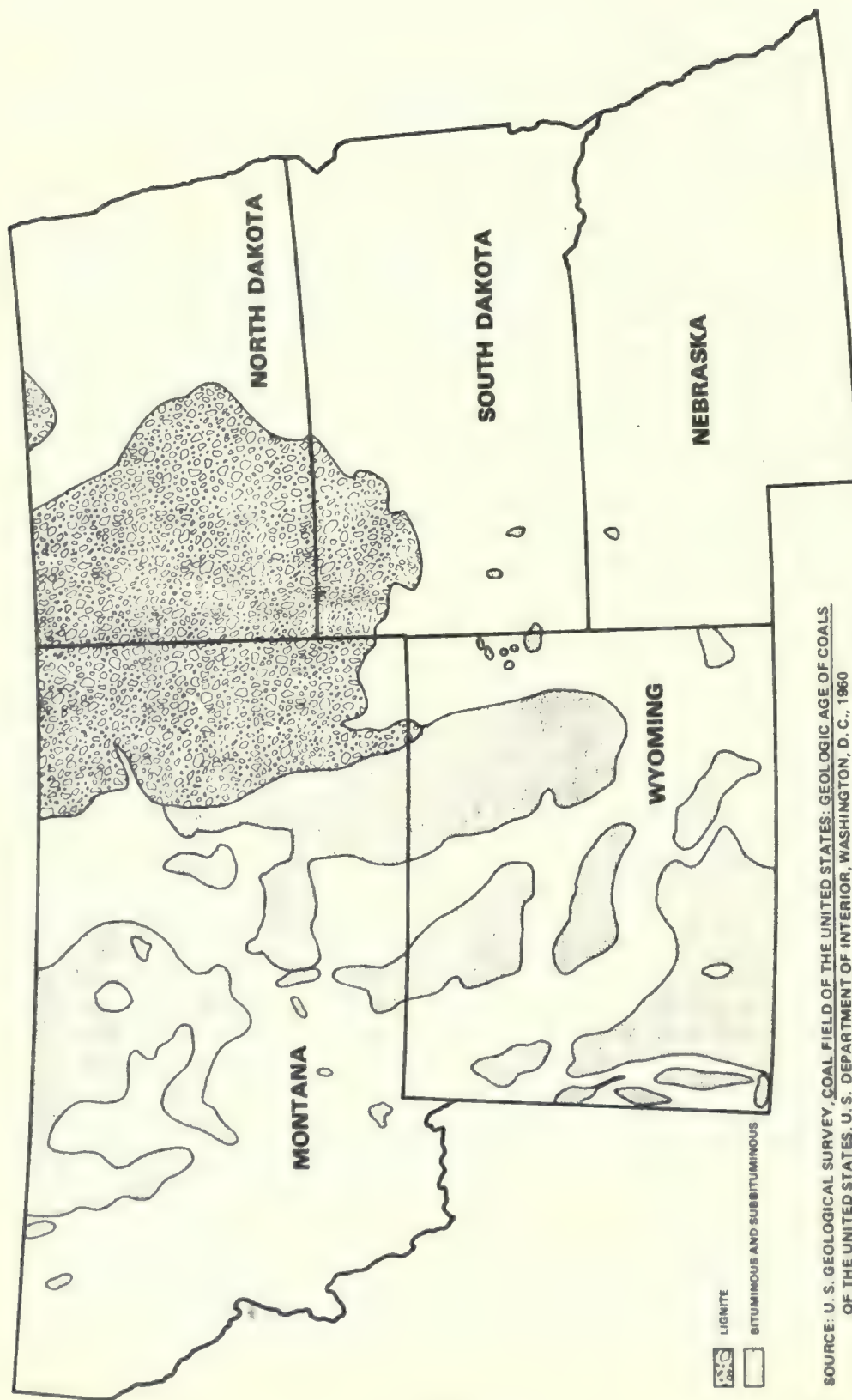
More important to the Region's economy than the increased production outputs has been the marked increase in the dollar value of coal. In the last few years the value of coal outputs have risen over 280 percent. Given the high national priority to develop reliable energy supplies, the high prices of alternative energy sources, and the availability of relatively abundant low sulphur content coal supplies in the Old West Region, the direction and level of economic change in the Old West Region will to a significant degree be determined by policies adopted and developments occurring in relation to these existing coal supplies. Estimates of total identified coal reserves for a 63-county area of the Region (see Table IV-13) approaching 700 billion tons¹ indicate that production could be increased significantly, particularly if a decision was made to maximize development of the Region's coal deposits.

While the Region's coal resources have attracted the most national attention, the Region has also produced significant amounts of crude oil and natural gas. For example, oil production within the Region during 1974 exceeded 200 million barrels of crude or 6.5 percent of the total national output. At the same time, the Region produced over 340 billion cubic feet of natural gas, or 1.6 percent of the nation's total (see Table IV-12). While neither production figure represented an extremely high percentage of the total national production, the importance of the Region's oil and gas production was amplified by the Arab oil embargo. This fact is evidenced by the 104 percent increase between 1971 and 1974 in the dollar value of the Region's crude petroleum and a 33 percent increase during the same period in the dollar value of the Region's natural gas. As of 1974 Montana (with over 15 percent), North Dakota (with about 10 percent), and Wyoming (with over 70 percent) accounted for over 95 percent of the value of the Region's oil and natural gas output. However, should extraction of existing (known) oil and gas reserves continue at current rates the Region's oil fields could be exhausted within 10 years (see Table IV-14), and gas fields in Wyoming could be exhausted within 12 years; while gas fields in North Dakota could be exhausted within 16 years. Estimates of current (1972) oil and gas reserves are shown in Table IV-14. It should

¹

Economically recoverable surface minable coal reserves (with present technology) are placed at about 54 billion tons in the 63-county area. Northern Great Plains Program, "Draft Report", September 1974, pp. II-2 to II-3.

FIGURE IV-6
MAJOR AREAS OF COAL RESERVES—OLD WEST REGION



SOURCE: U. S. GEOLOGICAL SURVEY, COAL FIELD OF THE UNITED STATES: GEOLOGIC AGE OF COALS OF THE UNITED STATES, U. S. DEPARTMENT OF INTERIOR, WASHINGTON, D. C., 1960

Table IV-13
ESTIMATED TOTAL COAL RESOURCES FOR A 63-COUNTY AREA
OLD WEST REGION
(in millions of short tons)¹

State	Identified Resources		Total identified resources	Additional hypothetical resources in unmapped and unexplored areas	Total estimated resources
	Original or remaining reserves. Includes measured and indicated resources in beds 5 feet or more thick, and less than 1,000 feet below the surface	Inferred resources; resources in beds generally less than 5 feet thick; and resources with more than 1,000 feet overburden			
	(1)	(2)	(3)=(1)+(2)	(4)	(5)=(3)+(4)
Montana	158,078	61,428	219,506	155,000	374,506
Wyoming	34,722	75,583	110,305	500,000	610,305
North Dakota	37,453	313,457	350,910	180,000	530,910
South Dakota	1,021	1,166	2,187	---	2,187
Total	231,274	451,634	682,908	835,000	1,517,908

¹ All figures are for coal in the ground, no more than half of which may be considered recoverable. All figures calculated as of June 1973.

Source: The reserve estimates provided are only for the 63-county study area, as defined in the Northern Great Plains Resource Program, Mineral Resources Work Group Report (Discussion Draft), February, 1974, p. 35.

Table IV-14
OIL AND GAS RESERVES
OLD WEST REGION
1972

	<u>Oil Reserves</u> <u>(thousands of barrels)</u>	<u>Gas Reserves</u> <u>(millions of cubic feet)</u>	<u>Natural Gas Liquid</u> <u>(thousands of barrels)</u>
Montana	228,185	1,024,561	9,801
North Dakota	174,011	503,683	47,128
Wyoming	996,985	4,131,492	97,642
Regional Totals	<u>1,399,181</u>	<u>5,659,736</u>	<u>154,571</u>

Source: Northern Great Plains Resources Program, Mineral Resources Work Group Report (Discussion Draft), February, 1974, p. 152.

be indicated that many areas of Wyoming and Montana have not been adequately tested and, consequently, these statistics on oil and gas reserves are deceiving. The production (and reserve estimates) are expected to rise when new prospects are evaluated.¹

Another energy producing resource found in the Old West Region is uranium. While uranium production has declined (specific production figures for 1971 and 1974 were not available from Bureau of Mines and thus, this statement is based upon information gained from government officials) in recent years because of adequate stockpiles already available, the Atomic Energy Commission (AEC) estimates that 16 percent of the nation's known reserves are contained within the Old West Region. The Region's major uranium deposits are located in the southern portion of the Powder River Basin in Wyoming. In fact, 92 percent of the Region's known reserves and 72 percent of the potential reserves are contained in this area. The four uranium mines and two mills presently operating in the Old West Region are all located in Wyoming. However, it should be noted that the South Dakota mine at Edgemont has produced significant quantities of uranium ore in the past (43 thousand tons in 1961). This mine and related equipment have recently been purchased by the Tennessee Valley Authority (TVA) which is currently studying the possibility of resuming full-scale exploration and mining operations.²

Regional mining activities are not limited to just fuel and energy resources. As previously mentioned, the Region's gold mines have contributed substantially to the nation's total gold production. The Homestake Mine located in the Black Hills of South Dakota, produces about 25 percent of all the nation's gold. While outputs from this mine have decreased from 558 thousand troy ounces in 1961 to 344 thousand troy ounces in 1974, Montana's mines have increased production by 79 percent (from 15.6 to 27.9 thousand troy ounces) between 1971 and 1974 after suffering a serious decline during the 1960's.

Of the other metals mined in the Old West Region, copper production has shown the only significant increases since 1961. Regional outputs of copper (Montana is the only State in the Region currently mining copper) accounted for 8.7 percent of the total national output during 1974. This represented a 2.9 percent increase over the Region's 1971 contribution to national copper production. On the other hand, silver production was about the same in 1974 as it had been in 1961 with regional production at just under 4 million troy ounces. All but about 3 percent (contributed by mines

¹ Northern Great Plains Resources Program, "National and Regional Energy Considerations Work Group Report," February, 1974, pp. I-2, I-10.

² Information obtained during telephone interview with an official of the Tennessee Valley Authority (TVA).

in South Dakota) of the Region's total 1974 silver output was produced by mines located in Montana. Production of lead and zinc had all but ceased to exist by 1974.

A number of the Region's non-metallic substances have also proven to be valuable commercial commodities. For example, the State of South Dakota publicly owns and operates a cement plant, using the State's unlimited supplies of sand and gravel. Wyoming is the nation's leading producer of bentonite and trona (sodium carbonate); bentonite is used chiefly by the petroleum and ferrous metal industries while the soda ash derived from trona is required in the manufacturing of glass as well as other commodities.

In general, the outlook for mining and mineral resource development activities in the Old West Region appears good over the next ten years. Reserves of the Region's major mineral resources, particularly coal, would indicate that current increasing production trends should continue. However, the nature and extent of future mining and mineral resource development activities will be determined to a great degree by the international, national, and regional decision-making processes that include a variety of public and private participants.

4.7 Tourism

The 1972 Census of Transportation indicates that approximately 114 million Americans from 41 million households took at least one trip during 1972. The reasons for this travel were varied and include the following statements:

- 38 percent traveled to visit friends and relatives;
- 20 percent went for business purposes or to attend conventions;
- 13 percent traveled to participate in outdoor recreation;
- 13 percent traveled for sightseeing and entertainment purposes; and
- 16 percent went for other reasons, such as to conduct personal affairs.

Recreation is a general term for leisure-time activities, and it includes leisure activities conducted near a person's residence. When recreation is combined with travel whose main purpose is recreation, it is generally considered tourism. Tourism also includes travel to visit vacation homes and to see friends and relatives.

Domestic travel expenditures in the Old West Region were estimated at about \$839 million in 1972 (see Table IV-15). The Old West Region derives travel income at a higher rate per capita than the nation as a whole. Table IV-15 indicates that the Region has 2.32 percent of the U.S. Travel expenditures.

Table IV-15

DOMESTIC TRAVEL EXPENDITURES
BY STATE VISITED
OLD WEST REGION
1972

	Travel Expenditures by Type ¹										Other ²	
	Total (millions of dollars)	Per Person Day (dollars)	Total (millions of dollars)	Per Person Day (dollars)	Total (millions of dollars)	Per Person Day (dollars)	Total (millions of dollars)	Per Person Day (dollars)	Total (millions of dollars)	Per Person Day (dollars)	Total (millions of dollars)	Per Person Day (dollars)
Region (percent of U.S.)	838.7 (2.32)	15.29 --	303.9 (2.19)	5.89 --	122.6 (1.92)	2.49 --	190.7 (2.51)	3.58 --	55.5 (2.58)	1.02 --	166.0 (2.63)	3.03 --
Montana (percent of region)	181.5 (21.64)	15.70	67.1 (22.08)	5.81	32.7 (26.67)	2.83	37.8 (19.82)	3.27	11.4 (20.54)	0.99	32.5 (19.58)	2.80
Nebraska (percent of region)	236.2 (28.16)	15.17	116.9 (38.47)	7.51	17.5 (14.27)	1.12	42.9 (22.50)	2.76	14.0 (25.23)	0.90	44.9 (27.05)	2.88
North Dakota (percent of region)	127.5 (15.20)	14.32	32.8 (10.79)	3.68	19.1 (15.58)	2.15	35.8 (18.77)	4.02	9.9 (17.84)	1.11	29.9 (18.01)	3.36
South Dakota (percent of region)	141.4 (16.86)	15.92	39.8 (13.10)	4.48	22.5 (18.35)	2.54	40.1 (21.03)	4.51	9.9 (17.84)	1.12	29.1 (17.53)	3.27
Wyoming (percent of region)	152.1 (18.14)	15.24	47.3 (15.56)	4.74	30.8 (25.12)	3.09	34.1 (17.88)	3.42	10.3 (18.56)	1.03	29.6 (17.83)	2.96

¹ Includes expenditures by those who regularly live in a housing unit and traveled 100 miles or more from home. Includes business and personal trips but excludes school trips.

² Includes gifts and incidental expenditures (clothing, personal service and other retail items purchased).

Source: U.S. Travel Data Center, 1972 National Travel Expenditure Study: Summary Report, Washington, D.C., December 1973.

This figure substantially exceeds the Region's population as a percent of the nation's (1.9 percent). The distribution of these travel expenditures within the Region indicate that Nebraska leads the States with over 28 percent, followed by Montana, Wyoming, South Dakota, and North Dakota. Wyoming and Montana receive travel expenditures which exceed their relative populations; North Dakota and South Dakota receive travel expenditures in proportion to their population; and Nebraska receives travel expenditures which are lower than its relative population.

Table IV-16 provides a comparison of the growth of hotel and motel receipts in the Region relative to the nation for the period 1967 through 1972. Every State showed hotel and motel receipts growth at a higher rate than the nation as a whole, and Montana, Nebraska, and South Dakota showed particular growth.

There are many tourist attractions throughout the Region as indicated in Figure IV-7. Although these attractions are spread throughout the Region, the overnight travel and tourism facilities appear to be situated primarily in urban areas and along Interstate highways (Figure IV-8). The pattern of these overnight facilities generally follows the out-of-state traffic density pattern shown in Figure IV-9. There are exceptions to the latter, however, in that there are major concentrations of overnight facilities near Glacier National Park, Yellowstone/Teton National Parks, and Mt. Rushmore National Monument.

It should also be noted that the density of out-of-state traffic on Interstate highways in the Old West Region is substantially less than the out-of-state traffic in the more densely settled areas of the country. For example, 15,000 out-of-state autos per day are common in the Appalachian Region compared with less than 2,000 for the Old West Region.

Out-of-state vehicles in the Region tend to favor the Interstate highways over other highways for all States in the Region (Table IV-17). Thus, the distribution of overnight facilities along the Interstate highways is not surprising.

Because of the importance of the National Parks as tourist attractions, visitations and overnight stays in these parks were examined for any possible trends. Tables IV-18 and IV-19 indicate that both day and overnight stays in the three major tourism areas (Glacier, Yellowstone/Teton, and Mt. Rushmore) has shown no growth or a decline during the past few years after substantial growth during the past decade. The reasons for this stagnation and decline are not clear, but they could include high gasoline prices, the effects of the recession, or capacity limitations at the parks themselves.

Both the 1972 Census of Transportation, mentioned earlier, and a Nebraska survey indicate that over 30 percent of out-of-state visitors come to visit

Table IV-16

HOTEL AND MOTEL RECEIPTS AND ROOMS
OLD WEST REGION
1967 AND 1972

Region (percent of U.S.)	Hotel-Motel Receipts (in thousands of dollars)		Estimated ¹ Real Percent Change Hotel-Motel Receipts 1967-1972	Estimated ² Number of Effective Hotel-Motel Rooms 1967
	1967	1972	Percent Change 1967-1972	
Region (percent of U.S.)	\$ 143,244 (2.27)	\$ 224,037 (2.62)	+ 51.13	72,320 (3.54)
Montana (percent of region)	\$ 29,776 (20.09)	\$ 48,037 (21.44)	+ 61.33	16,585 (22.93)
Nebraska (percent of region)	\$ 37,989 (25.63)	\$ 58,514 (26.12)	+ 54.03	17,675 (24.44)
North Dakota (percent of region)	\$ 18,222 (12.29)	\$ 25,638 (11.44)	+ 40.70	9,437 (13.05)
South Dakota (percent of region)	\$ 20,701 (13.96)	\$ 31,965 (14.27)	+ 54.41	12,486 (17.27)
Wyoming (percent of region)	\$ 41,556 (28.03)	\$ 59,883 (26.73)	+ 44.10	16,137 (22.31)
United States	\$5,532,725	\$8,548,000	+ 30.85	2,044,114

¹ Receipts for 1972 deflated by national room rate index: 1967=100; 1972=132

² Estimated from receipts per room information available for large segment of industry. Also takes into account seasonality so that establishments which are open only part (less than 10 months) of the year, have approximately that fraction of their total rooms counted.

Source: 1) Bureau of Census, Census of Business 1967. U.S. Department of Commerce, Government Printing Office, Washington, D.C., 1970.
 2) Bureau of Census, Census of Business 1972, U.S. Department of Commerce, Government Printing Office, Washington, D.C., 1974.
 3) Bureau of Census, Statistical Abstract of the United States, 1974 (95th Ed.) Washington, D.C., 1974.

FIGURE IV-7
TOURISM ATTRACTIONS—OLD WEST REGION

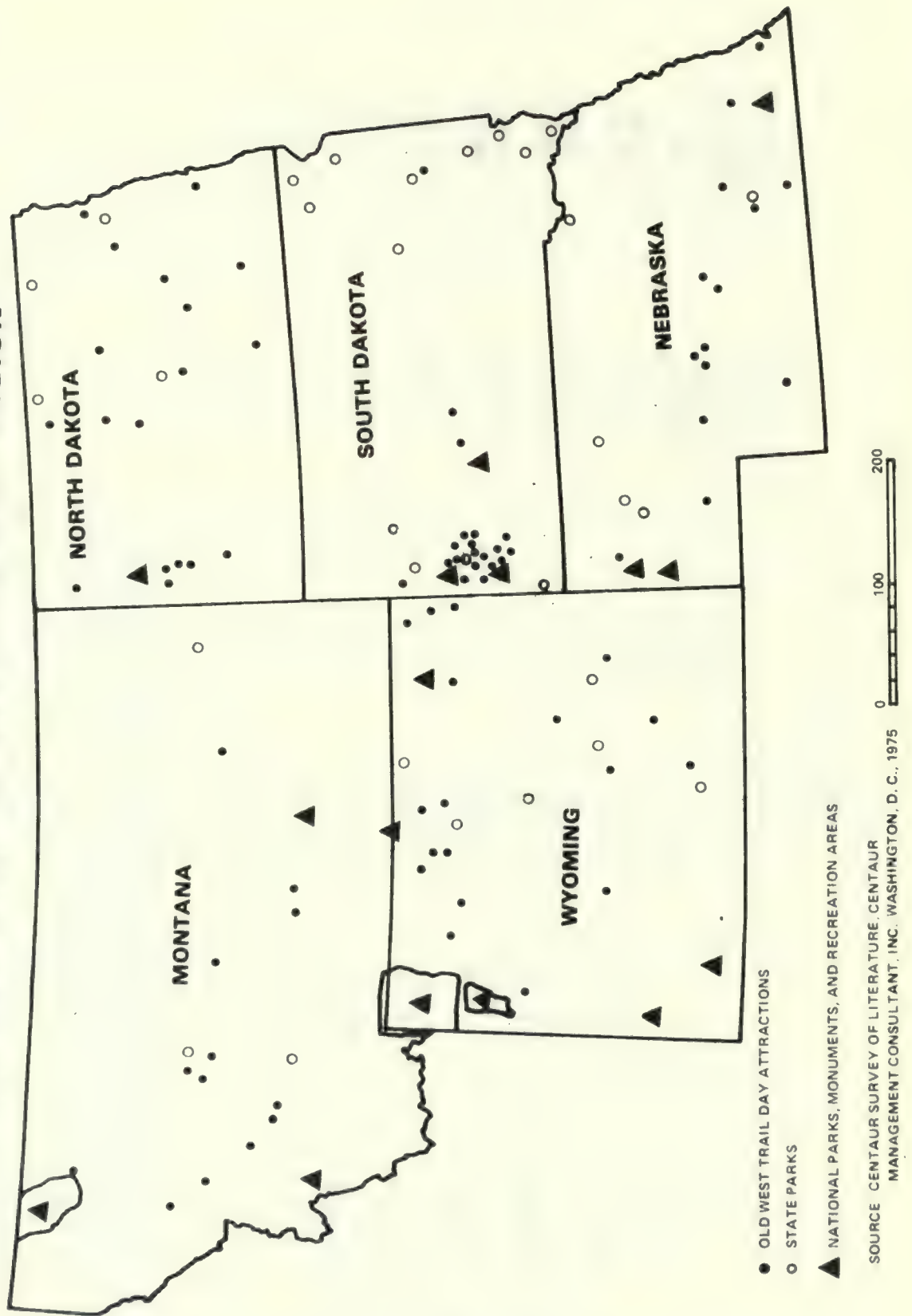
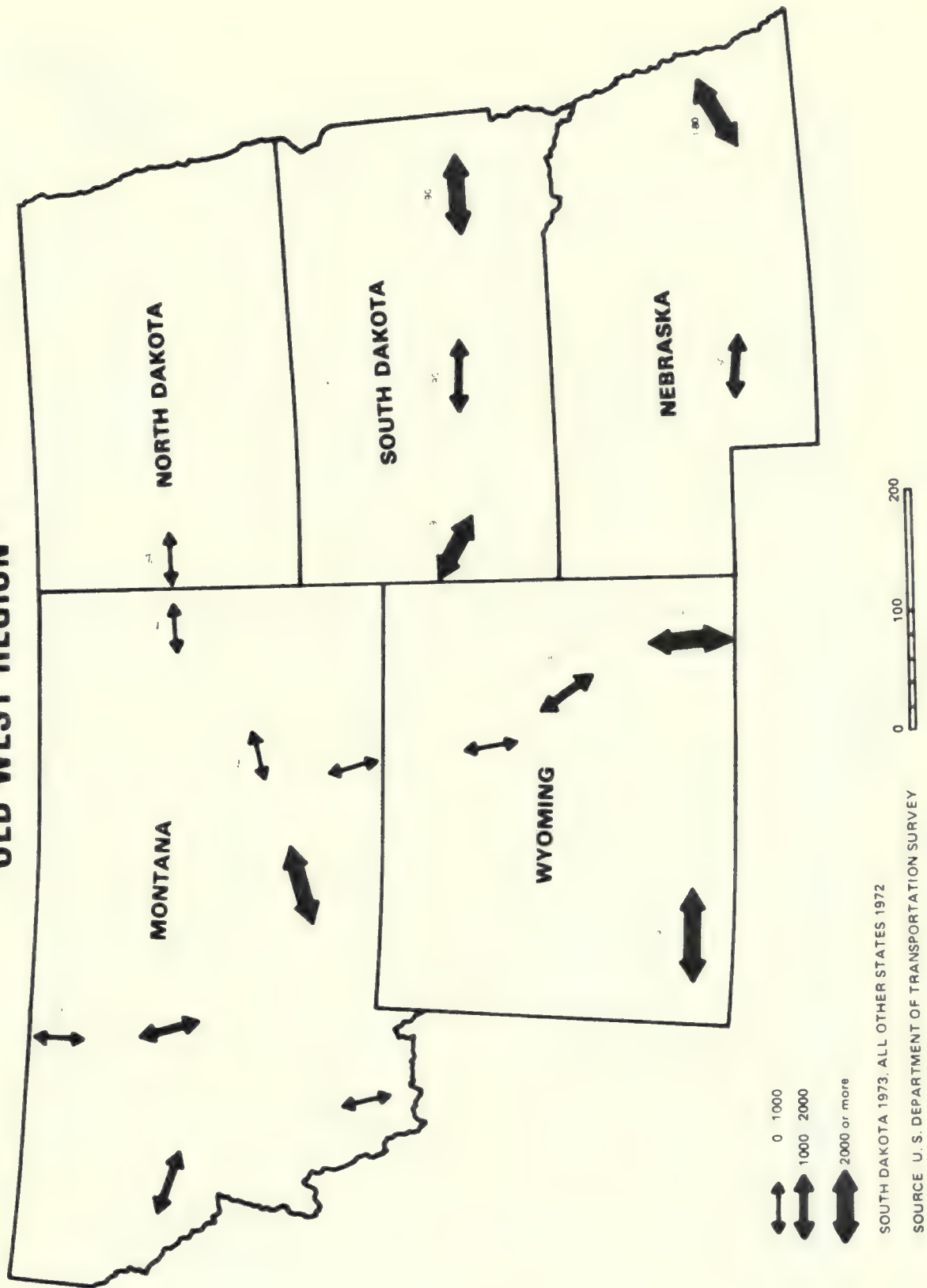


FIGURE IV-8
OUT-OF-STATE VEHICLES ON INTERSTATE HIGHWAYS
OLD WEST REGION



SOUTH DAKOTA 1973. ALL OTHER STATES 1972

SOURCE U. S. DEPARTMENT OF TRANSPORTATION SURVEY

FIGURE IV-9
OVERNIGHT TRAVEL AND TOURISM FACILITIES—OLD WEST REGION

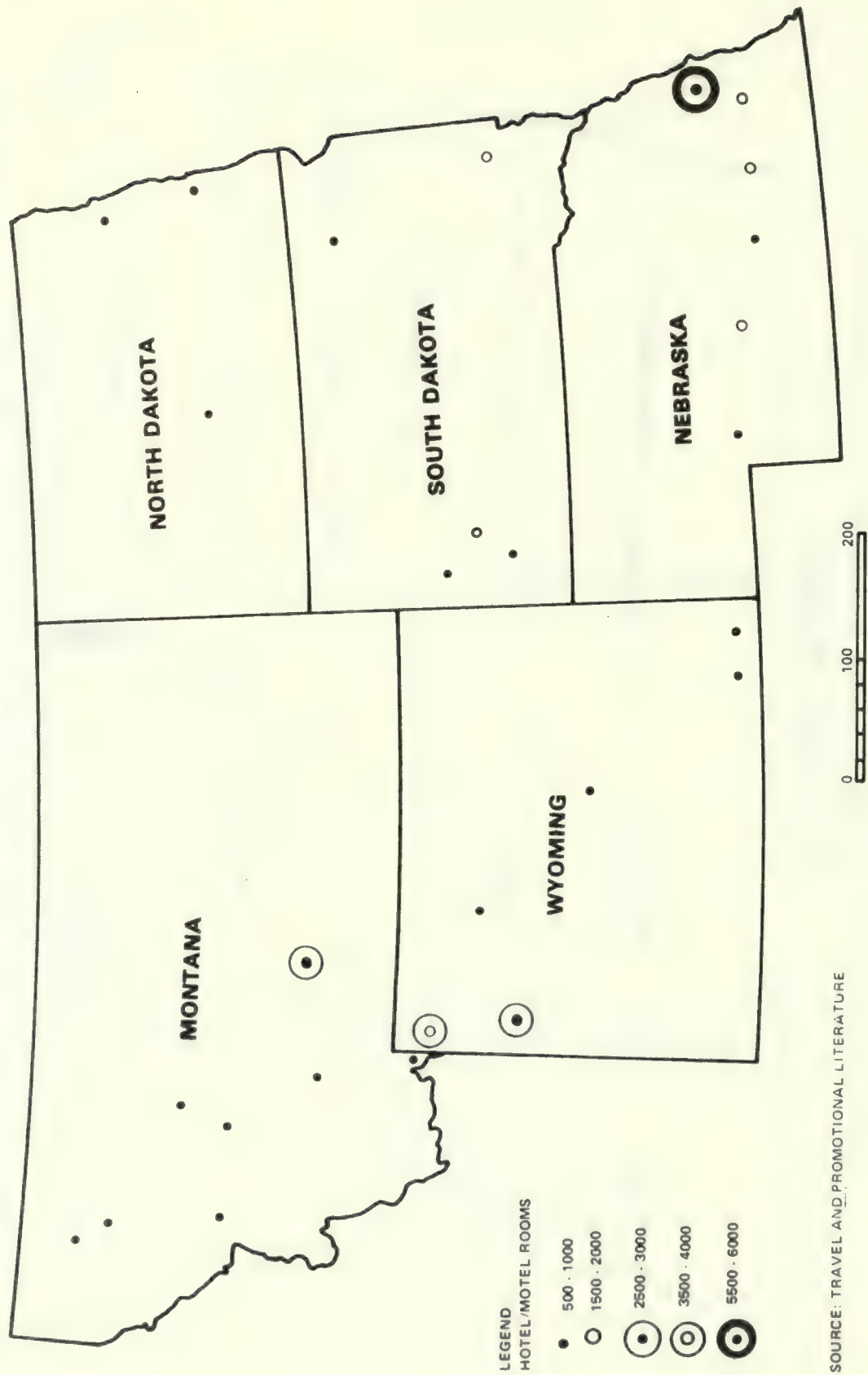


Table IV-17

OUT OF STATE VEHICLES ON HIGHWAYS
PERCENTAGE AND MILES TRAVELED
OLD WEST REGION
1973

	<u>Region</u>	<u>Montana</u>	<u>Nebraska</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Wyoming</u>
All Highways ¹	18.08%	19.62%	10.37%	16.04%	27.55%	28.83%
Interstate Routes ²	32.63%	27.77%	23.82%	38.72%	44.00%	44.60%
Total Number of Vehicle Miles Traveled in millions	29,741	5,689	11,153	4,300	5,140	3,459
Estimated Total Number of Miles Traveled by Out- of-State Vehicles in millions	5,376	1,116	1,157	690	1,416	997

¹ Average daily percentage during summer days, 1973.

² Average annual percent : South Dakota 1973, other States 1972.

Note: Count taken of all vehicles at truck weight stations.

Source: U. S. Department of Transportation Survey.

Table IV-18

NUMBER OF VISITATIONS TO NATIONAL PARKS AND MONUMENTS
OLD WEST REGION
1960, 1970, 1973 and 1974
(in thousands of visitations)

	1960		1970		1973		1974		Annual Change in (Percent)		
	Total	Percent of U.S.	Total	Percent of U.S.	Total	Percent of U.S.	Total	Percent of U.S.	1960-1970	1970-1973	1973-1974
Region	6,651.5	8.4	12,113.8	7.0	13,848.3	6.4	12,875.3	5.9	+6.2	+4.6	-7.1
Montana	1,144.0		2,000.4		2,233.8		2,216.8		+5.7	+3.7	-0.8
Big Hole (National Battlefield)	10.7		39.7		35.1		34.8		+14.0	-4.0	-0.9
Custer Battlefield (National Battlefield)	146.5		263.2		312.1		259.9		+6.0	+5.8	-16.7
Glacier (National Park)	724.5		1,241.6		1,399.0		1,406.6		+5.5	+4.1	+0.5
Nebraska	110.2		163.6		185.9		196.9		+4.0	+4.4	+5.9
Agate Fossil Beds (National Monument)	--		6.9		8.2		10.1		--	+5.9	+23.2
Homestead (National Monument)	18.7		26.7		20.7		19.9		+3.6	-8.2	-3.8
Scotts Bluff (National Monument)	91.5		130.0		157.0		166.9		+3.6	+6.5	+6.3
North Dakota	223.2		680.0		855.7		705.0		+11.8	+8.0	-17.6
Theodore Roosevelt (National Memorial Park)	223.2		680.0		852.8		701.7		+11.8	+7.8	-17.7
South Dakota	2,841.9		4,341.4		4,417.9		3,940.4		+4.3	+0.6	-10.8
Badlands (National Monument)	878.6		1,303.1		1,399.9		1,217.3		+4.0	+2.4	-13.0
Jewel Cave (National Monument)	31.7		75.5		80.6		81.7		+9.1	+2.2	+1.4
Mount Rushmore (National Memorial)	1,067.0		1,965.7		1,983.5		1,785.7		+6.3	+0.3	-10.0
Wind Cave (National Park)	864.6		997.1		953.9		855.7		+1.4	-1.5	-10.3
Wyoming	2,332.2		4,928.4		6,155.0		5,816.2		+7.8	+7.7	-5.5
Devils Tower (National Monument)	117.0		147.4		153.2		125.6		+2.3	+1.3	-18.0
Fort Laramie (National Historical Site)	45.6		122.9		97.4		107.9		+10.4	-7.5	+1.1
Fossil Butte (National Monument)	--		--		1.0		14.6		--	--	1,360.0
Grand Teton (National Park)	1,429.9		3,352.5		3,083.3		2,936.8		+8.9	-2.7	-4.6
John D. Rockefeller (Parkway)	--		--		1,627.9		1,597.5		--	--	-1.9
North Dakota-Montana											
Fort Union Trading Post					2.8		3.3		--	--	+17.9
Wyoming-Montana											
Big Horn Canyon (National Recreational Area)	--		154.0		253.3		245.2		--	+18.0	-3.2
Yellowstone (National Park)	1,443.3		2,297.3		2,066.2		1,937.8		+4.8	-3.5	-6.2
Wyoming-Utah											
Flaming Gorge ¹	--		--		--		--		--	--	--

¹ Data on visitations unavailable.

Source: National Park Service, Public Use of the National Parks; A Statistical Report, 1960-1970, U.S. Department of Interior, Washington, D.C., 1971, and other unpublished data put out by National Park Service.

National Park Service, Public Use of the National Parks, December, 1974, U.S. Travel Data Center, Washington, D.C., 1975

Table IV-19
OVERNIGHT STAYS AT NATIONAL PARKS AND MONUMENTS
OLD WEST REGION
1970-1974
(in thousands)

Region	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Total	2,429.2	2,578.3	2,283.3	2,314.7
Percent of U.S.	18.11	17.84	14.88	15.08
Montana				
Glacier (National Park)	360.5	357.5	368.7	349.9
Nebraska ¹				
North Dakota				
Theodore Roosevelt (National Memorial Park)	40.9	39.6	41.0	30.7
South Dakota				
Badlands (National Monument)	44.9	48.0	44.7	38.2
Wind Cave (National Park)	20.8	18.5	20.2	13.2
Wyoming				
Devils Tower (National Monument)	13.5	15.5	13.6	11.6
Grand Teton (National Park)	593.2	618.6	559.6	473.5
John D. Rockefeller Parkway	0	1.5	76.0	66.4
Wyoming-Montana				
Big Horn Canyon (National Recreation Area)	9.8	14.5	18.3	17.9
Yellowstone (National Park)	1,345.6	1,464.6	1,141.2	1,313.3

¹ No overnight stays at National Parks and monuments recorded.

Source: National Park Service, Public Use of The National Parks,
U.S. Travel Data Center, Washington, D.C.
Annual Publication (1972-1974)

friends or relatives. The out-migration experienced by the Region thus offers a solid opportunity to bring back former residents as tourists. Also, the generally high growth in travel expenditures throughout the Region indicates that substantial travel/tourism development potential exists. This potential could take the form of encouraging more expenditures from non-tourism travelers as well as developing the income producing capabilities of currently popular tourism/recreation destination areas in the western parts of the Region.

The relatively short summer season is a major barrier to extensive tourism development, but winter activities such as skiing and snowmobiling could serve to extend the season at currently popular summer areas. There is severe competition for winter sports in the Southern Rockies, however, because of the milder weather and the ease of transportation from and to the Denver and Salt Lake City areas.

The Old West Region is ringed by major metropolitan areas (see Figure II-1), and these population centers typically form a major market area for vacation homes and day-use attractions. However, virtually none of these areas are within a two hour drive of potential second home developments in the Region. Over 80 percent of the national vacation home market is within a three hour drive of the owner's primary home, and over 50 percent are within a two hour drive of the primary residence. As a result, this major segment of the tourism market will be very difficult to develop.

Previous studies¹ indicate that tourism development primarily contributes to economic development when unemployment is a problem. However, tourism is considerably less effective as an income producer because of the pay scales and seasonality problems faced by tourism workers. Thus, tourism can best be used in local economies where unemployment is a more serious problem than income generation.

¹ Family Income Patterns in Tourism/Recreation Areas, prepared for Economic Development Administration, U.S. Department of Commerce, by Centaur Management Consultants, Inc., January 1974; and Evaluation of Impact of Tourism/Recreation Projects for Economic Development Administration, prepared for Economic Development Administration, U.S. Department of Commerce, by Centaur Management Consultants, Inc., June, 1973.

CHAPTER V

ENVIRONMENTAL QUALITY

5.1 Summary

This chapter discusses regional environmental conditions in terms of select air and surface water quality indicators in each State and throughout the Old West Region. Environmental quality is generally quite good in the Region. The degradation which exists is often the result of land use activities which are not currently controlled by Federal, State or local standards. Air and water quality should continue to improve with the implementation of current Federal legislation. However, it is important to note that this conclusion is based on a region wide assessment and in a select number of pollutants which act as surrogates for other pollutants. Not considered in this analysis are localized environmental conditions and certain toxic but less pervasive pollutants.

5.1.1 Regional Water and Air Quality

Surface water quality in the Old West Region is most frequently impacted by nonpoint sources of pollution. A "nonpoint" source of pollution (often related to land use) occurs on a broad scale and does not lend itself to isolation or efficient control measures. A "point" source of pollution is a specific condition or origin which can usually be isolated and subjected to control.

The most predominant forms of water pollution in the Old West Region are nutrients, salts and suspended solids.¹ Large concentrations of nutrients, (i.e. space phosphates and nitrates) increase the eutrophication potential of relatively stagnant waters by stimulating heavy algal growth. An excessive salt content (as total dissolved solids) in water can disrupt aquatic communities and decrease the value of water for irrigation and domestic water supply purposes. A heavy concentration of suspended solids in surface water reduces the amount of light available to underwater plants and causes esthetic damage to recreational water.

Sporadic high levels of nutrients in the Region are often the result of fertilization and surface water runoff from pastures and cropland. The high salinity content of some regional water supplies is caused by natural salts (i.e., chlorides and sulfates) carried in agricultural runoff and the return flow of irrigation waters. These salt levels are augmented by other sources, such as mine drainage and saline seep. Mine drainage also increases the content of trace metals, such as copper, iron and manganese in the Middle Missouri River (from Yankton, South Dakota to Kansas City, Missouri). The concentration of suspended solids (or turbidity) in the Region is greatest in the Middle Missouri River Basin as a result of strip mining in the Upper Missouri River Basin and farming practices as well as natural sedimentation in both the Upper and Middle Missouri River Basins. Urban storm runoff also tends to contribute considerable concentrations of organic material, nutrients, metals, oils and pesticides to waters in the Old West Region. Concentrations of nutrients, salts and suspended solids tend to have an increasingly degrading effect in the Middle Missouri River Basin due to upstream agricultural activity and the

¹ Organic or inorganic particles that have neither settled out or dissolved in the water.

cumulative results of irrigation, mine drainage, and agricultural and feedlot runoff.

Regional point source discharges do not generally degrade water quality to the extent (noted above) of nonpoint sources. Inadequate sewage treatment is the most notable point source of regional water quality degradation. Municipal and industrial wastes often result in detrimental levels of nutrients and fecal coliform bacteria which are supplemented by feedlot runoff. Fecal coliform concentrations are highest in eastern Nebraska.

Ambient¹ regional air quality data is scarce due to a lack of monitoring stations and consistently measured air quality parameters. Most of the available data is limited to major urban areas and provides an insufficient record for the establishment of detailed statewide ambient air quality profiles.

The U.S. Environmental Protection Agency (EPA), has developed National Ambient Air Quality Standards (NAAQS) for the following six "criteria air pollutants": sulfur oxides (SO_x), particulate matter, carbon monoxide (CO), photochemical oxidants, hydrocarbons (HC) and nitrogen oxides (NO_x).

Sulfur oxides result primarily from the combustion of fossil fuels which contain sulphur. Particulate matter may originate from natural circumstances such as wind blown soil and dust particles, and from industrial and residential sources. Carbon monoxide is a by-product of the incomplete combustion of carbon containing fuels (primarily gasoline) and some industrial activity. Photochemical oxidants are produced in the atmosphere when reactive organic substances, chiefly hydrocarbons, and nitrogen oxides are exposed to sunlight. Hydrocarbons stem mainly from the processing and use of petroleum products. Nitrogen oxides originate in high temperature combustion processes such as exist in the petroleum and metals industries and in automobiles.²

Current but incomplete data indicate generally good regional air quality despite the existence of point sources of particulate pollution, such as power plants, oil refineries, mineral processing operations and grain elevators. Point sources of regional sulfur oxide emissions are coal powered electric generation, the primary and secondary metals industries, wood and mineral products, and petroleum refineries. Major area (i.e., nonpoint) sources of air quality degradation, such as soil erosion, transportation and the combustion of vegetation (forest fires, agricultural burning) frequently emit substantial amounts of particulates, hydrocarbons, carbon monoxide and nitrogen oxides.³

¹ The surrounding atmosphere as opposed to the effluent quality of a smoke stack.

² Office of Public Affairs, "Clean Air," EPA, Washington, D.C., 1973.

³ National Emissions Data System (NEDS), State Emissions Reports, Research Triangle Park, North Carolina, 1975.

Major pollutants and their sources in the Old West Region are listed in Table V-1.

5.1.2 State Water and Air Quality

a) Montana

Water pollution in Montana is largely the result of nonpoint sources related to past and current land use practices. A major source of State stream degradation is an increasing rate of turbidity and total suspended solids caused by sedimentation. The State estimates that the beneficial use of over 1800 miles of State streams is affected by sedimentation.¹ Specific sources of suspended solids in State surface waters include general agricultural activities, logging and forestry, past mining activities and irrigation. Irrigation is also a source of elevated water temperatures, stream dewatering and a sporadic concentration of nutrients and dissolved solids in Montana rivers. High natural salt concentrations in surface and ground water are frequently the result of irrigation and saline seep. Small segments of State streams are also degraded by arsenic, fluoride and various trace metals stemming from thermal discharges in Yellowstone Park and past mining activities throughout the State.²

Local sewage treatment plants are the major point source of Montana water pollution. Approximately 300 miles of State streams are estimated to contain excessive fecal coliform bacteria as a result of sewage treatment effluent and feedlot runoff.³

Five Air Quality Control Regions (AQCRs) designated by the U.S. Environmental Protection Agency are located throughout Montana. Each AQCR contains a geographic area likely to share common air pollution problems. Measurements collected from air monitoring stations within these regions during 1974 indicate some air quality problems in Montana as a result of both point and area sources. The Billings area recorded consistently high concentrations of hydrocarbons due to area refineries. Fugitive (windblown) dust tended to cause occasional short-term concentrations of particulates in the Great Falls area. An increased amount of particulates has also been recorded in the Helena and Missoula AQCRs due to fugitive dust, industrial smelter activities and plywood production. Numerous short-term (24-hour) concentrations of sulfur oxides were recorded in the Helena area due to the operation of industrial smelters. The remaining AQCR (Miles City) was monitored on a test basis and was not expected to record high concentrations of any major air pollutant.⁴

¹ Water Quality Bureau, "Montana 305 (b) Report", State Department of Health and Environmental Sciences, Helena, Montana, 1975

² Ibid.

³ Ibid.

⁴ Conversation with David Maughan, Air Monitoring Supervisor, Montana Department of Health and Environmental Sciences, June, 1975

Table V-1

MAJOR POLLUTANTS AND SOURCES
OLD WEST REGION
1975

	AIR					WATER			
	CO	HC	NOx	SOx	Partic.	Nutrients	Salinity	Trace Metals	Suspended Solids
Soil Erosion ¹					X	X	X	X	
Forest Fires ²	X	X			X				
Agricultural Runoff ³						X	X		X
Mining Activities					X		X		X
Solid Waste Disposal	X	X			X			X	X
Irrigation						X	X		X
Urban Runoff						X		X	
Vehicle Traffic	X	X	X						X
Sewage Treatment						X	X		X
Primary Metals Industry				X	X			X	X
Commercial Feedlots						X			
Electric Generation ⁴			X	X	X				X
Food Processing					X	X			X
Petroleum Industry	X	X	X	X	X				
Pulp and Paper Industry				X	X	X			X

1. As a product of wind and water

2. Includes agricultural and forestry maintenance burning

3. From pastures and cropland

4. Coal powered

Land Related

Process Related

The National Emissions Data System (NEDS) operated by the U.S. Environmental Protection Agency indicates that the amount of criteria pollutants emitted from industrial point sources in Montana exceeds that of any other State in the Region (with the exception of carbon monoxide from Wyoming petroleum industries).¹ Additional amounts of carbon monoxide and hydrocarbons are emitted in Montana due to forest fires, agricultural burning and slash (forestry maintenance) burning.²

b) Nebraska

The degradation of Nebraska water quality is largely a function of the State's agricultural activities. The return flow of irrigation waters and natural sedimentation resulting from agricultural runoff and erosion tend to carry suspended solids and salts from the soil. These pollutants originate from nonpoint sources and are currently subject to little control.

Seasonal variations in the dissolved oxygen content of State surface waters often result from municipal and industrial waste, and from feedlots, grazing land and fertilized crop land. Exceptionally high levels of fecal coliform bacteria appear to be most frequent in the eastern section of the State due to inadequate sewage treatment, feedlots and meat packing plants.³

Occasional NAAQS violations of carbon monoxide and oxidants were reported in Omaha and Lincoln in 1974 due to automobile traffic.⁴ Recent rural particulate violations have been attributed to soil erosion during unusually dry periods, while urban point sources, such as grain processing and coal powered electric generating plants, tend to be the source of high municipal readings.⁵

Sulfur dioxide emissions due to external fuel combustion in Nebraska are the highest in the Region.⁶ The bulk of these emissions stem from coal powered electric generation. Relatively high levels of air pollution often result in urbanized areas of the State due to vehicle traffic emissions.⁷

¹ NEDS, op. cit.

² NEDS, op. cit.

³ NEDS, op. cit.

⁴ Conversation with Gene Robinson, Chief of the Air Pollution Control Division, Nebraska Department of Environmental Control, Lincoln, Nebraska, June, 1975

⁵ Ibid.

⁶ NEDS, op. cit.

⁷ NEDS, op. cit.

c) North Dakota

The State Department of Health indicates that the most severe violations of North Dakota water quality standards occurred in 1974 for nutrients and dissolved solids during low flow conditions.¹ High levels of both pollutants are attributable to natural and agricultural runoff throughout the State. Coliform violations occurred during periods of high flow due to feedlot runoff and sanitary/storm sewer overflow. Dissolved oxygen and chloride violations were low throughout the State, with only one excessive measurement occurring in 1974 for each criteria.

National Air Quality Standards were not frequently violated in North Dakota during 1974.² Occasional particulate violations occurred on a short-term basis (violating maximum 24-hour concentration limits) but were not frequent enough to cause a violation of the NAAQS for annual geometric mean concentrations. The natural erosion of agricultural land and secondary roads is the major area source of particulate violations in North Dakota. No violations of the NAAQS for sulfur dioxide were recorded in North Dakota during 1974 and the State measured no other pollutant parameters.³

d) South Dakota

Excessive concentrations of suspended and dissolved solids in South Dakota surface waters are the result of soil erosion, agricultural runoff and irrigation.⁵ Sporadically high fecal coliform levels in State streams are attributable to feedlot runoff, inadequate sewage treatment and surfacing septic tank effluent. Minor seasonal variations in the dissolved oxygen level of State surface waters are the result of organic materials from similar sources. Dissolved oxygen is generally lowest in the summer months when solubility is at a minimum, and is further reduced by increased nutrients from fertilizer runoff and scattered meat processing plants.

1 North Dakota State Department of Health, "305 (b) Report on Water Quality", Bismarck, North Dakota, 1975

2 Conversation with Dana Mount, Air Pollution Control Division, North Dakota Department of Health, June, 1975.

3 Ibid.

4 NEDS, op. cit.

5 South Dakota Department of Environmental Protection, "305 (b) Report on Water Quality", Pierre, South Dakota, 1975.

Runoff from soil rich in ferrous compounds is responsible for the high iron levels found in many streams in the Black Hills area. Although water quality is generally good in the Black Hills, it occasionally falls in quality due to raw sewage effluent and mining activity. Runoff from past and present mining operations contributes iron tailings and small quantities of mercury, arsenic and cyanide to streams in the Black Hills.¹

The Big Sioux River Sub-basin in the extreme eastern part of the State received the most significant amount of point source pollution in the State. Sewage effluent produces a high level of ammonia nitrogen and a corresponding decrease in the river's dissolved oxygen level. Several packing plants also increase the biological oxygen demand and the level of nutrients and suspended solids in the Big Sioux River Sub-basin.²

Occasional violations of the NAAQS for particulates were recorded in the eastern portion of South Dakota in 1974. These readings were generally the result of fugitive dust on windy days.³ High concentrations of particulates have also occurred in the Rapid City area as a result of electric power generation. A cement plant and limestone quarries in the Black Hills area also contribute to high short-term (24-hr.) particulate levels. As the Rapid City power plant has obtained a variance until 1977, local emissions may not improve greatly until that time.⁴

South Dakota has comparatively low levels of sulfur dioxide emissions. This is generally the result of the low sulfur content of coal used in electric power generation in the State. The total point and area emission levels of particulates, sulfur oxides and nitrogen oxides in South Dakota are the lowest of all States in the Old West Region.⁵

e) Wyoming

Wyoming water quality is generally the best in the Region. Occasional high levels of turbidity are noted throughout the State due to natural surface runoff. Erosion, agricultural activities and mining practices tend to cause increased concentrations of dissolved and suspended solids in Wyoming streams but the existing level of degradation is not great. Low levels of dissolved oxygen have been noted in the Crow Creek area below Cheyenne due to increased organic materials from grazing lands. Turbidity levels reach their peak during periods of maximum runoff while dissolved oxygen⁶ tends to decline during low flow periods. Inadequate sewage treatment plants and lagoon overflow are point sources of high fecal coliform concentrations in several segments of Wyoming streams.

¹ Ibid.

² Ibid.

³ Conversation with Robert Pipe, Environmental Sanitarian. South Dakota Department of Environmental Protection, June, 1975.

⁴ Ibid.

⁵ NEDS, op. cit.

⁶ A measure of the amount of free oxygen in the water.

Also, violations of the State temperature standard have been recorded at the Dave Johnston power plant in Glenrock, and oil spills from refinery activities occasionally cause serious local problems.¹

Wyoming air quality is also generally quite good. Only one of the 23 active air quality monitoring stations throughout the State recorded excessively high particulate readings during 1974. The high measurements occurred in Rock Springs and were attributed to fugitive coal dust on local roads associated with power generation at the Jim Bridger plant.²

Although the State was estimated to have the highest level of point particulate emissions stemming from the generation of electricity, this excess is one of the few high emission levels in Wyoming.³ The State's petroleum industry is a point source of high carbon monoxide emissions, however the total amount of CO emitted in Wyoming remains low due to the relatively small number of vehicles and vehicle miles travelled throughout the State.

5.2 Environmental Reference Standards

5.2.1 Water Pollution Control

The Federal Water Pollution Control Act Amendments of 1972 empower a joint effort by the states and the Federal government to eliminate pollutant discharges in the nation's waterways by 1985. The act requires EPA to issue effluent guidelines for existing point sources and to set standards for new point sources. In addition, the EPA Administrator must publish standards for toxic pollutants and to pre-treatment of industrial waste. The States are to establish water quality standards in conjunction with National 304(a) Water Quality Criteria and to participate in the National Pollutant Discharge Elimination System.

a) National Effluent Standards

The Federal Water Pollution Control Act (PL 92-500) has provided a means by which the states may implement national water pollution control measures subject to Federal guidelines and final enforcement authority. A major element of PL 92-500 is the permit program by which states are encouraged to assume the administration of the National Pollutant Discharge Elimination System (NPDES) in participation with the EPA. The law states that all point source discharges must obtain a permit which specifies their effluent discharge limitations and a schedule for compliance.

¹ Wyoming Quality Division, "Wyoming 305 (b) Water Quality Inventory", Wyoming Department of Environmental Quality, Cheyenne, Wyoming. 1975.

² Conversation with Gerald Blackwell, Wyoming Department of Environmental Quality, June, 1975.

³ NEDS, op. cit.

The NPDES enables States to issue permits and enforce effluent limitations on point sources of pollution, such as general industrial activities, municipal waste treatment facilities and discrete agricultural sources. However, the EPA may grant a state the authority to participate in the NPDES only after that state has met specific requirements relating to enabling legislation, procedures of state program administration, enforcement and public hearings. After a state program is approved by the EPA, each permit is subject to EPA review. As of July 1975, EPA had granted state program approval to Montana, Nebraska, Wyoming, and North Dakota. EPA remained the controlling authority in South Dakota which had not yet applied under NPDES.¹

The issuance of permits (by the states or the Federal government) is based on effluent standards which are empowered by PL 92-500. The Act states that all public waste treatment facilities must utilize secondary treatment² by July 1, 1977. All other dischargers of pollutants are to achieve effluent limitations which constitute the "best practicable control technology currently available" by the same time period. In addition, certain pre-treatment standards must be met by industrial dischargers who use public waste treatment facilities in their production process. By July 1, 1983, industrial dischargers must meet effluent requirements using the "best available technology economically achievable" and publicly owned treatment facilities must apply the "best practicable waste treatment technology".³ Public Law 92-500 charges the Administrator of EPA with responsibility for: "(1) The interpretation of the terms 'best practicable' and 'best available' when applied to various categories of industry, (2) and promulgation of guidelines which will be the formula for determining what effluent limitations are to be imposed upon dischargers, (3) the identification of control measures and practices to eliminate the discharge of pollutants, and (4) the publication of information describing the degree of effluent reduction attainable by the application of secondary treatment, and alternative waste treatment management techniques, as a basis for 1983 effluent limitation."⁴

¹ Conversations with the Legal Branch, Water Enforcement Division, EPA Washington, D.C., June, 1975.

² Secondary sewage treatment is the application of a biological process by which the removal of 90-95 percent of the solids and 70-95 percent of the Biological Oxygen Demand (BOD) of effluent inflow is accomplished.

³ PL 92-500, Section 301.

⁴ Office of Enforcement and General Counsel, "The National Water Permit Program", EPA, Washington, D.C., 1973.

New factories and industries will also be subject to national standards. In addition to issuing effluent guidelines for existing point sources, the Administrator is required to establish special effluent standards which will minimize the discharge of pollutants from new industrial point sources.¹ Toxic or other hazardous materials are also subject to standards established by the Administrator under the authority of PL 92-500.²

b) National Water Quality Criteria

Federal water pollution control extends to ambient water quality as well as specific effluent standards. The Act requires state water quality standards "... to protect the public health or welfare ... taking into consideration the use and value of public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes."³ The Act further establishes a national goal of water quality "which provides for the propagation of fish, shellfish, and wildlife and provides for recreation in and on the water . . . by July 1, 1983."⁴

Section 304(a) of PL 92-500 requires the Administrator of EPA to establish "water quality criteria" which shall act as guidelines for individual state water quality standards. The Act states that "The Administrator (of EPA), after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after October 18, 1972 (and from time to time thereafter revise) criteria for water quality accurately reflecting the latest scientific knowledge (a) on the kind and extent of all identifiable effects on health and welfare, including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including groundwater; (b) on the concentration and dispersal of pollutants, or their by-products, through biological, physical, and chemical processes; and (c) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and rates of organic and inorganic sedimentation for varying types of receiving waters."⁵

It should be emphasized, however, that the states are not required to adopt the water quality criteria published by EPA. The criteria are simply guidelines which may be used by the states in the preparation of their water quality standards as well as the issuance of point source discharge permits.

¹ PL 92-500, Section 306 (b) (1) (B).

² PL 92-500, Section 307 (a) (1).

³ PL 92-500, Section 303 (c) (2).

⁴ PL 92-500, Section 101 (a) (2).

⁵ PL 92-500, Section 304 (a) (1).

c) State Water Standards

It is difficult to compare national water quality criteria with individual state standards. National water quality criteria and their corresponding reference values are continually updated by EPA in order to reflect the most current judgement concerning each pollutant. An inevitable time gap exists between the publication of EPA reference criteria and the voluntary incorporation of those values into state standards. In addition, state water quality standards are often situational. It is difficult, for example, to impose identical standards for suspended solids on the highly cultivated areas of Nebraska and less agrarian regions of Montana and Wyoming. Furthermore, the criteria published by EPA pertain to various stream use designations (aquatic life, irrigation, bathing, domestic water supply, etc.) which may not be duplicated in state standards. Table V-2 compares selected EPA parameters (pollutants), their corresponding reference criteria value and their stream use designation, with analogous state standards.

State standards for fecal coliform and pH generally conform to those suggested by the EPA. The incomparability of state and national values is most apparent in the suspended solids, ammonia and trace metal criteria. In many cases, these standards may be analogous to national reference criteria, but are expressed in terms or measured by units which do not coincide with those of EPA. EPA criteria for dissolved oxygen and water temperature are based on a complex series of measurements which do not lend themselves to a comparison with current state standards. A national criteria value does not currently exist for turbidity.

5.2.2 Air Pollution Control

The major provisions of the Clean Air Act of 1970¹ establish National Ambient Air Quality Standards (NAAQS) which specify the allowable ambient concentrations of various pollutants permissible in 1975 and a "reasonable time" thereafter. Each State is required to adopt a State Implementation Plan in order to meet national air quality standards, and to submit that plan to EPA for review and approval. After EPA approval, the States had until mid-1975 to begin compliance with the Act.

¹ 42 USC Section 1857 et seq., 49 USC Sections 1421, 1430 (originally enacted as PL 91-604, 84 Stat. 1676 (1970)).

² 42 USC Section 1857 c-4, 1857 c-5 (1970).

Table V-2

COMPARISON OF DRAFT NATIONAL 304(a) CRITERIA¹
WITH CURRENT STATE WATER QUALITY STANDARDS
1975

Pollutant Substance	EPA National Criteria	Old West Region				Stream Use Designation
		Montana	Nebraska	North Dakota	South Dakota	Wyoming
Fecal Coliform	200/ 100m ¹	200/ 100m ¹	200/ 100m ¹	200/ 100m ¹	None	200/ 1000m ¹
pH	6.5-9.0 0.5 ²	6.5-9.0 0.5 ²	6.5-8.5 0.5 ²	7.0-8.5	6.5-9.0	6.5-8.5
Suspended Solids	25-80 mg/l	Incomparable ³	Incomparable ³	None	90 mg/l	None
Ammonia	.025 mg/l	Incomparable ³	1.4 mg/l as NH ₃ -N	1.0 mg/l	Incomparable ³	None
Iron	1.0 mg/l	Incomparable ³	None	None	0.2 mg/l	None
Zinc	70 ug/l	None	None	Incomparable ³	Incomparable ³	None
Dissolved Oxygen	Incomparable	6.0 mg/l	5.0 mg/l	7.5 mg/l	6.0 mg/l	6.0 mg/l
Turbidity	None	10 JCU	±10% ² or less ²	10 JCU	10 JCU	10 JCU ²
Temperature	Incomparable	10°F or less	90°F ±5°F	None	80°F	None

¹ Updated every three years.² Allowable variation of existing conditions.³ A standard exists which is not comparable in form to EPA criteria.⁴ Units: ml-milliliter, mg/l-milligram per liter, ug/l-microgram per liter, JCU-Jackson Candle Unit

Source: Office of Water Planning and Standards, EPA, Washington, D.C., 1975;

State "Section 305b Reports"; and conversations with state water quality agencies.

a) National Ambient Air Quality Standards

The Clean Air Act established national primary standards of ambient quality for the protection of public health. Primary air quality standards were to be achieved "as expeditiously as practicable" but no later than July 1975. More stringent secondary standards for the protection of esthetics, property and vegetation are to be met "within a reasonable time" as determined by the EPA.¹

The maximum allowable concentration of each pollutant contained in the national standards is expressed in a long-term measurement (maximum annual geometric or arithmetic mean) and/or a short-term measurement (maximum eight hour or 24-hour concentration). The EPA established national standards for six common air pollutants in April 1971. These standards are listed in Appendix B Table B-1.

The Clean Air Act also requires specific emission reductions from various discrete sources. The Act has specified reductions in new car emissions which will lessen the amount of hydrocarbons, carbon monoxide and nitrogen oxides emitted by autos. The Act also requires each state to establish a transportation plan which should develop a strategy for the reduction of auto emissions per mile, and total miles driven within a state.²

b) State Implementation Plans

The Clean Air Act of 1970 requires each state to hold public hearings in order to adopt an implementation plan to meet National Ambient Air Quality Standards, and to submit that plan to EPA for review and approval. Each state must adopt emission standards and other measures necessary to maintain national standards. The controlling state agency may be granted injunctive relief in order to enforce applicable regulations and standards, and emergency action can be taken by the states in order to prevent substantial endangerment to public health.

Each State Implementation Plan should detail the actions a state is currently taking or intends to take in order to reduce statewide emissions to the level permitted by national standards. A state plan must specify the enforcement powers delegated to the agency which will administer the state's air quality program. State Implementation Plans should also define "significant deterioration" in areas which currently have high air quality and establish air quality maintenance plans in metropolitan areas.

¹ 42 USC Section 1857 c-4, 1857 c-5 (1970).

² 42 USC Section 1857 et. req. (1970).

Under the Act, a state may prohibit the construction, modification or operation of any stationary source of air pollution if its emissions will prevent national standards from being achieved or maintained either by its own emissions or by attracting large amounts of vehicle traffic. The applicable state agency is empowered to obtain all information necessary to determine if air pollution sources are in compliance with the law. A state may require factories, power plants and other stationary sources of pollution to monitor their emissions and report the nature and amount of those emissions to be the appropriate state agency.

The monitoring and Air Quality Trends Report published by the EPA indicates that the most prevalent types of air pollution in the Old West Region are particulates and sulfur oxides.¹ Current state air quality standards established pursuant to the Clean Air Act of 1970 are compared with corresponding national standards for particulates and sulfur oxides in Table V-3. The comparison shows that, with the exception of Nebraska, State standards tend to be stricter than national primary standards. It is not unusual for State air quality standards in the Old West Region to correspond to the more stringent secondary NAAQS as in the case of particulate standards for North Dakota, South Dakota and Wyoming.

5.3 Regional Water Quality Trends

5.3.1 Historical Problem Areas

National guidelines for water quality control are not as well-defined as those for national ambient air quality. Municipal and industrial goals of "best practicable" or "best available" technology are not comparable to strict NAAQS criteria. Permit systems for water pollutant discharges differ from one state to another, as do individual state standards and stream use designations. Frequently, the role of EPA is to publish guidelines or reference levels (such as 304(a) criteria) which can be used by various states in the formulation of their own water quality standards.

1

Office of Air Quality Planning and Standards, Monitoring and Air Quality Trends Report, 1973, EPA, Research Triangle Park, North Carolina, 1974.

Table V-3

**AMBIENT AIR QUALITY STANDARDS
OLD WEST REGION AND NATION
1975**
(in micrograms per cubic meter)

Pollutant Substance	Primary National Ambient Air Quality Standard	State Standards				Averaging Period
		Montana	Nebraska	North Dakota	South Dakota	Wyoming
Particulates	75 gm ¹	75 gm	75 gm	60 gm	60 gm	60 gm
	260 ²	200 ³	260 ²	150 ²	150 ²	150 ²
						24-hour
Sulfur Oxides	80 am ⁴	60 am	80 am	60 am	60 am	60 am
	365 ²	262 ⁵	365 ²	260 ²	260 ²	260 ²
						24-hour

- 1 Annual geometric mean.
- 2 Not to be exceeded more than once per year.
- 3 Not to be exceeded more than 1 percent of the days measured.
- 4 Annual arithmetic mean.
- 5 Not to be exceeded more than 1 percent of the days measured in any three month period.

Source: The Bureau of National Affairs, Inc., Environment Reporter, Washington, D.C., 1975

There are a number of pollutant parameters which have remained a source of consistent environmental concern to the EPA and other environmental pollution measuring and enforcement agencies. These parameters are listed in Appendix B, Table B-2. Additional metals and pesticides whose effects are currently being explored by the EPA are also included. Table B-2 notes the source of each parameter's corresponding reference level and the stream use designation to which it applies. Most of the reference levels have been extracted from current 304(a) water quality criteria now under consideration by the EPA. A final determination concerning certain criteria has not yet been made, and each reference level is subject to revision. Certain parameters of special concern to the Old West Region are not yet included in the 1975 EPA draft criteria listing. Suggested levels for these parameters have been taken from the 1974 National Water Quality Inventory published by EPA.¹

A historical (1968-1974) analysis of current pollutant parameters of concern to both the EPA and the Old West Region appears in Table V-4. The Table shows the percent of stations in each State which recorded one or more pollutant values (measurements) in excess of the current EPA 304(a) reference criteria. Monitoring stations classified as "data rich" by the EPA (i.e., conducting a sufficient number of measurements for a minimum number of parameters) were the only stations considered for this comparison; therefore, there is the very real potential for having understated the water pollution problem. The measured values taken by approximately 350 stations throughout the Region were evaluated for "violations" of current EPA criteria during each of the years under study.

Table V-4 is not meant to represent the totality of ambient State water quality data. Numerous U.S. Geological Survey (USGS) stations throughout the Region were not included in this analysis due to the inability of the EPA's STORET computerized data system to tabulate USGS water quality measurements. Furthermore, water quality monitoring stations are often problem-oriented; that is, they are frequently located in a particular geographic area in order to monitor existing water quality problems. The fact that violations were recorded may only serve to substantiate the judgment of various officials concerning the location of problem areas. Consequently, "violations" of suggested reference levels constitute an indication of water pollution problem areas rather than ambient water quality. The percentage of stations which recorded at least one nonconforming value was calculated in an attempt to de-emphasize the specific number of "violations" while stressing the consistency of that problem throughout a State.

1

Office of Water Planning and Standards, National Water Quality Inventory, EPA, Washington, D.C., 1974, p. 24-25.

Table V-4

STATIONS WITH ONE OR MORE MEASURED VALUES NOT CONFORMING WITH SELECTED
1975 EPA 304(a) WATER QUALITY REFERENCE LEVELS
1958-1974

Pollutant Parameter	Number of Stations	Montana (in percent)					Nebraska (in percent)									
		1968	1969	1970	1971	1972	1973	1974	Number of Stations	1968	1969	1970	1971	1972	1973	1974
Total Coliform	16								43	97	60	85	85	33	50	33
Fecal Coliform	28				4				119	*	*	92	*	84	88	90
Dissolved Oxygen	44	12				4			135	12	4	9	5	8	6	1
Alkalinity	45			14	32	27			142					1		1
Chloride	37			75	22	7	50	40	138	3	3	1	1	2	1	3
Sulfate	37	35	42						137	2	5	1	1	3	3	11
Total Nitrate	43			3					130	1			7		5	
Total Phosphate	36			13	73	*		20	131	79	93	91	90	91	96	40
Turbidity	31	37	37	5		4	9		128	65	78	71	63	54	74	60
pH	37	7		19					144			3		3		1
Total Dissolved Solids at 105°C	7	57	0	100	100	100	100	100	129	35	24	31	33	30	26	30
Total Suspended Solids	25			11		4			30	100	66	66	16	50	90	100
Total Dissolved Solids at 180°C	6				33	40	40	40	2					50	50	50
Temp F°	19								2							
Temp C°	36								149	1	2	1				
Total Phosphorous	14	57	78	100					15	85	87			100	100	100
Copper	63			100	57	90	100	100	1							
Iron	50		46	60	57	45	28	50	161	25	27					
Zinc	64			90	30	27	80	100	1							*
Mercury	23			*				100	0							
Aldrin	3				66				1							
Dieldrin	3			66	100				0							
D.D.T.	3			33	33				1							

Note: Selected water quality stations were administered by the respective states, the EPA and the Army Corps of Engineers. The absence of a percentage indicates either no violation was recorded or no measurements were conducted.

1 Total number of stations conducting measurements, 1968-1974.

* For this measurement, certain thresholds of detectability were above the selected reference level, leaving in doubt whether or not there was a violation. Other measurements for this parameter, however, were unambiguously above the reference level.

Source: STORET Computerized Data Base, EPA, 1975.

Table V-4 (cont.)

STATIONS WITH ONE OR MORE MEASURED VALUES NOT CONFORMING WITH SELECTED
1975 EPA 304(a) WATER QUALITY REFERENCE LEVELS
1968-1974

Pollutant Parameter	North Dakota						South Dakota						Wyoming											
	Number of Stations	in percent					Number of Stations	(in percent)					Number of Stations	(in percent)										
		1968	1969	1970	1971	1972		1973	1974	1968	1969	1970		1971	1972	1973	1974	1968	1969	1970	1971	1972	1973	1974
Total Coliform	25	4	45	36	52	52	56	7	2															
Fecal Coliform	18				30	70	54	50	41	13	14	14	22	46	50	35	8							
Dissolved Oxygen	38	12	23	17	3	6	25	10	52	13	9	3		20		5	11							100
Alkalinity	19			3					48															
Chloride	43		4				3		32	4	4		6											
Sulfate	35	29	39	44	51	54	54	57	30	68	52	50	75	55	50	70	4							
Total Nitrate	15		6						27															
Total Phosphate	30				72	76	82	72	21	100			57	57	66	20	6							
Turbidity	23	50	30	62				8	27	26	20	31	7	15			3							
pH	18		5						54	16				5		15	6							
Total Dissolved Solids at 105°C	9	42	66						40	55	47	25	13	13	50	85	4							
Total Suspended Solids at 105°C	7								24	83	90	85	83	75	25	42	8							
Total Dissolved Solids at 180°C	6		42	57	80	66	80	83	10				66	77	83	80	3							
Temp F°	3								13		9		14				3							
Temp C°	40	4							48						7		3							
Total Phosphorous	16	66	75	100					17	66	50					100	2							
Copper	9							22	1								1							
Iron	27							8	97					1	1		21							*
Zinc	10								2								2							100
Mercury	10							*	16							*	0							
Aldrin	0								12								0							
Dieldrin	0								12								0							
D.D.T.	0								12								0							

Although there are several pollutant parameters throughout the Region which seem to consistently surpass EPA 304(a) reference criteria (i.e., suspended solids, nutrients, dissolved solids and fecal coliform) it is noteworthy that most of these substances stem from nonpoint sources connected with agricultural activity for which there are limited or no viable control measures. Natural and agricultural runoff, and the return flow of irrigation waters tend to increase surface water levels of both suspended and dissolved solids. Salinity (as a measure of dissolved solids) in ground water also tends to be a function of geologic conditions, such as those occurring in saline seep. High nitrate and phosphate concentrations occur in runoff from fertilized cropland.

The largest point source responsible for reference level exceptions is municipal sewage treatment plants. Inadequately treated (or untreated) sewage effluent is occasionally¹ released into state waterways causing excessive levels of nutrients and fecal coliform bacteria. Runoff from pastures and commercial feedlots also contributes substantially to coliform levels in the Old West Region. The most frequent high readings have occurred in eastern Nebraska.

5.3.2 Current Water Quality

Major national river segments are ranked by indicators of water quality in Table V-5. Segments are ranked by increasing number of "exceptional" parameters (i.e., poor water quality) and by decreasing number of "exemplary" parameters (i.e., good water quality) within groups of segments with the same number of exceptional parameters. The rank of a river segment is based on the number of parameters measured in that segment having "mean medians"² which exceed the reference levels established by EPA for comparative purposes (see Appendix B, Table B-3 a listing of comparative reference levels for each parameter). A mean median comparison provides a good indicator of ambient water quality because the median also tends to stress the most frequently occurring measurements, while de-emphasizing isolated high readings. Although water quality measurements used in this ranking were taken from the main stem segments of each river, the ranking is indicative of areawide water quality due to the numerous tributaries which drain into the river's main stem from areas throughout each state.

¹ Usually during storms when combined sewers handle waste water as well as storm runoff.

² A river segment is characterized by averaging the median measurements taken by selected monitoring stations for designated pollutants into a single number: the mean of the medians.

Table V-5

NATIONAL RIVER SEGMENTS BY RANK
1973

Rank	Segment	Numbers of Parameters	
		Exemplary	Exceptional
1	Upper Missouri	8	0
	Columbia	8	0
3	Lower Tennessee	6	0
4	Snake	5	0
5	Willamette	4	0
5	Boston Harbor	4	0
5	Upper Mississippi	4	0
8	Yukon	0	0
9	Chicago Area-Lake Michigan	8	1
10	Upper Tennessee	6	1
11	Detroit Area-River	8	2
12	Rio Grande	4	2
13	Alabama	3	2
13	Upper Ohio	3	2
13	Susquehanna	3	2
16	Upper Red	0	2
17	Lower Colorado	5	3
18	Potomac	2	3
18	Detroit Area-Tributaries	2	3
20	Sacramento	6	4
21	Lower Red	4	4
21	Brazos	4	4
23	Upper Colorado	3	4
23	Hudson	3	4
25	Delaware	2	4
25	Middle Mississippi	2	4
27	Lower Arkansas	3	5
27	Lower Ohio	3	5
29	Lower Mississippi	3	6
29	Middle Ohio	3	6
31	Lower Missouri	2	6
32	Chicago Area-Tributaries	1	6
33	Mississippi near Minneapolis	1	7
34	Upper Arkansas	4	9
35	Middle Missouri	3	10

Source: Office of Water Planning and Standards, National Water Quality Inventory, Volume II, EPA, Washington, D.C., 1974, Appendix H.

The Upper Missouri River includes 1,400 miles of main stem river which stretches through Montana, North Dakota and South Dakota. This segment was judged by the EPA to be the most exemplary of all those considered in the nation. The Upper Missouri River excelled in levels of dissolved oxygen, ammonia nitrate, phosphate and coliform (i.e., these parameters were ranked as "exemplary"). No pollutant levels in the Upper Missouri River were found to be below the average EPA reference level (i.e., "exceptional") (see Appendix B, Table B-4 for more detailed information).

The Middle Missouri River which forms the eastern border of Nebraska (and receives drainage from most of the State) was ranked as the least exemplary of those rivers considered. Although this river segment had exemplary levels of dissolved oxygen and ammonia nitrate, it had exceptionally high levels of suspended solids, phosphates, turbidity and coliforms due to natural runoff, agricultural practices, feedlot runoff, and inadequate municipal and industrial waste treatment. Although these sources contribute substantially to Nebraska water quality degradation, a portion of the Middle Missouri River's water quality must be attributed to the cumulative effects of similar sources in the upstream portions of the Old West Region as well as eastern tributaries from Iowa and Minnesota.

5.4 Regional Air Quality

5.4.1 Historical Air Quality

Regional air quality measurements indicate that ambient levels of air pollutants in the Old West Region have been generally low, with the exception of sporadic particulate concentrations. Periodic air pollution measurements for sulfur oxides and particulates are taken by State and local air monitoring stations throughout the Region. Monitoring of other criteria pollutants (carbon monoxide, photochemical oxidants, hydrocarbons and nitrogen oxides) is usually restricted to special problem areas.

The NAAQS for particulates has been the most frequently violated standard in the Old West Region.¹ Major point sources of particulate emissions in the Region include food processing and storage (e.g., grain elevators), mining activities, electric generating plants, and the primary metals and petroleum industries. The dominant area source

¹ Conversation with State air quality agencies, op. cit.; and Office of Air Quality Planning and Standards, op. cit.

of regional particulates is fugitive dust stemming from soil erosion. Sulfur oxide emissions originate from petroleum refineries, electric generating plants, and smelters associated with the primary metals industry. Carbon monoxide emissions stem from open burning and vehicle traffic emissions in urban areas.

Excessive carbon monoxide and sulfur oxide emissions are situational. Hazardous levels of these pollutants are limited to discrete sources which do not currently present a problem for ambient regional air quality, but may be a problem in localized areas. Particulate emissions, however, constitute a problem throughout the Region because they stem from point sources, such as grain processing and mining activities, which do not lend themselves to viable measures of control. The major area source of particulate emissions in the Old West Region is fugitive dust from the erosion of cropland and secondary roads. Forest fires and agricultural burning also contribute to uncontrollable particulate levels in the northwest section of the Region.

The number of monitoring stations recording violations of the primary NAAQS for particulates during 1969 through 1973 is shown in Appendix B, Table B-5. Data for this historical profile were gathered by state-supervised monitoring networks and are submitted on a continuing basis to the National Aerometric Data Bank (NADB) operated by the EPA.¹ It is noteworthy that state violations collected by the EPA do not always accurately reflect state air quality. State data are occasionally submitted in improper form, late, or without the requisite number of observations required by EPA. Such data are excluded from EPA profiles. Consequently, historical data compiled by the EPA will be supplemented by current air quality information from local agencies in Section 5.4.2.

Annual violations of the NAAQS for particulates usually stem from continuous sources, such as industrial activities and electric power generation. The percent of stations recording annual violations of the primary NAAQS for particulates in the Old West Region has remained below the national percentage for each year from 1969 through 1973, indicating relatively low regional point source emissions. Short-term (24-hour) violations of the NAAQS for particulates often stem from unusually high sources of pollution which may exist during a distinct time period. Sources of short-term particulate violations in the Old West Region are intense industrial activity or, more frequently, fugitive dust during excessively dry or windy periods. Table B-5 in Appendix B shows an increasing percentage of 24-hour regional particulate violations in 1970-1973. The regional percentage of short-term violations surpasses the national percentage in 1973. Although 1973 was an unusually dry year in the Region, the rising short-term particulate violations tend to reflect a continuous regional fugitive dust problem.

¹ Office of Air Quality Planning and Standards, op. cit.

Figure V-1 illustrates the annual geometric mean of total suspended particulate concentrations for the Old West Region and the United States during 1970-1973.¹ The mean concentration for the Old West Region (obtained from the National Aerometric Data Bank) is compared with national and Midwestern area trends. Figure V-1 shows the concentration of particulates in the Old West Region to be lower than that of the Midwest area in which it is contained, and that of the nation as a whole. Although the percent of stations in violation of the primary 24-hour NAAQS for particulates in the Region is analogous to that of the nation, ambient regional particulate concentrations are substantially less than the national average because there were proportionately fewer high particulate emission sources in the Old West Region than in the nation during the years noted in Figure V-1.

(See Appendix B, Figure B-1 for the geographical regions and the number of monitoring sites used in this comparison.) However, the upward trend in particulate concentration may be attributed to increased industrial activity and an unusually dry period in 1973 which contributed to land related sources of particulate emissions.

5.4.2 Current Air Quality

The location of regional monitoring stations which recorded violations of the primary NAAQS for particulates during 1973 is shown in Table V-6. State authorities, however, indicate that violations of national standards have occurred more frequently during 1974 than might have been projected from the data supplied by the EPA in Table B-5 (see Appendix B).

Nebraska reported that dry weather, grain processing and coal powered electric generating plants caused the 1974 level of short-term and annual particulate violations to greatly exceed those reported by the EPA for 1973.² The State reports over 20 violations of both the annual and 24-hour primary NAAQS for particulates during 1974. In addition, occasional carbon monoxide and oxidant violations have occurred in the Omaha area while Lincoln has reported approximately 45 violations of the eight-hour carbon monoxide standard during 1974.

Although the EPA shows no violations of the NAAQS for particulates in Montana during 1973, the State reports numerous 1974 particulate violations.³ The primary 24-hour NAAQS for particulates was violated 35 times in Helena and Missoula during 1974 due to the industrial smelters and lumber activities. Two particulate violations were also reported in Great Falls due to high winds. The Billings area reported numerous hydrocarbon violations from local refineries and the three-hour sulfur oxide standard was violated over 20 times due to industrial

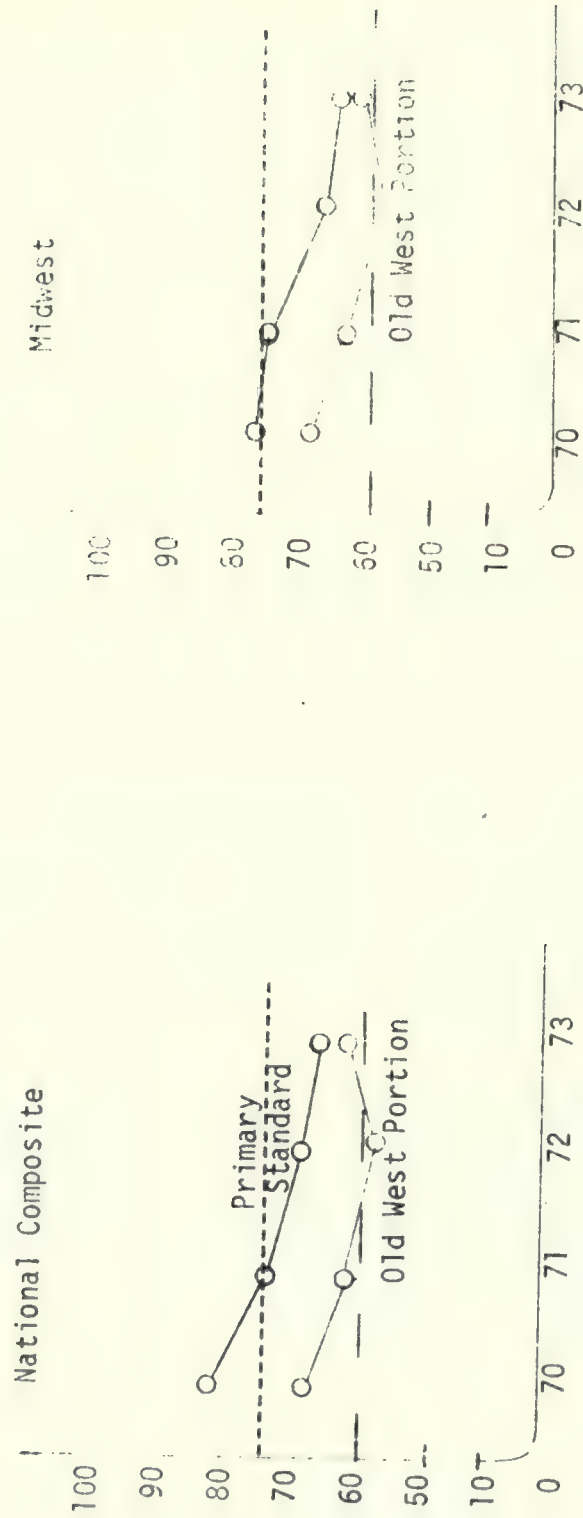
¹ Ibid.

² Conversation with Gene Robinson, op. cit.

³ Conversation with David Maugham, op. cit.

Figure V-1

TRENDS IN TOTAL SUSPENDED PARTICULATES
OLD WEST REGION AND NATION
1970 - 1973



TSP - Annual Geometric Mean in Micrograms per Cubic Meter

Source: Office of Air Quality Planning and Standards. Monitoring and Air Quality Trends Report, 1973, EPA Research Triangle Park, N.D., and National Aerometric Data Bank Yearly Frequency Distributions; Montana, Nebraska, North Dakota, South Dakota, Wyoming, 1975, EPA Research Triangle Park, N.C.

Table V-6

LOCATION OF STATIONS EXCEEDING PRIMARY NAAQS FOR PARTICULATES
OLD WEST REGION
1973

State	AQCR Location	Annual Particulate NAAQS			24-Hour Particulate NAAQS		
		Number of Stations Reporting Valid Data	Number of Stations Recording Violation	Area Location of Violation	Number of Stations Reporting Valid Data	Number of Stations Recording Violation	Area Location of Violation
Montana	Billings	0	0		0	0	
	Great Falls	1	0		1	0	
	Helena	0	0		0	0	
	Miles City	0	0		0	0	
	Missoula	0	0		0	0	
Nebraska	Omaha	7	2	Omaha	12	1	Omaha
	South Sioux City	1	1	South Sioux City	1	0	
	Lincoln-Beatrice	7	0		13	2	Lincoln
	Remainder of State	9	1	Cass County	17	2	Cass and Dawson County
North Dakota	Fargo	5	1	Fargo	3	3	Fargo and Cass County
	Remainder of State	11	1	Grand Forks	13	1	Grand Forks
South Dakota	Sioux Falls	2	1	Sioux Falls	3	0	
	Black Hills	3	1	Rapid City	3	1	Rapid City
	Remainder of State	1	0		2	0	
Wyoming	Casper	2	0		3	0	
	Metropolitan Cheyenne	1	0		4	0	
	Remainder of State	3	1	Rock Springs	6	1	Rock Springs

Note: Monitoring data from stations contained in Regional AQCRs but located outside the boundaries of the Old West Region are excluded from the above tabulations.

Source: Office of Air Quality Planning and Standards, Monitoring and Air Quality Trends Report, 1973, EPA, Research Triangle Park, North Carolina, 1974

smelters in Helena during 1974. The remaining three States reported only isolated particulate violations in 1974 due to mining, electric power generation and fugitive dust.¹

5.4.3 Calculated Regional Emissions²

The National Emissions Data System (NEDS) operated by the EPA has estimated the amount of criteria pollutants emitted by the subsectors of five air polluting activities: 1) internal and external fuel combustion; 2) selected industrial processes; 3) solid waste disposal; 4) transportation and 5) miscellaneous activities (e.g., natural combustion from forest fires, agricultural burning, etc.) The most recent NEDS calculations available for the Region and nation are those for 1973-1974. These data are compared with 1972 emissions in Table V-7.

A comparison of the percent change of calculated emission from 1972 to 1974 between the Old West Region and the nation as a whole illustrates relative emission problems within the Region. Table V-7 notes a nine percent increase in regional particulate emissions from 1972 to 1974. Conversely, the nation experienced a fifteen percent decrease in particulate emissions. The national decrease was due to reduced industrial and solid waste particulates and a reduction in the particulates emitted by coal powered electric generating plants throughout the nation. The Old West, however, is calculated to have experienced a slight increase in the amount of particulates emitted by industrial activity (primarily the petroleum, secondary metals and mining industry). Agricultural processing and the generation of electricity also contributed to higher regional particulate levels in 1973-1974. These emissions when combined with high regional levels of naturally occurring fugitive dust, were responsible for a substantial increase in regional particulates.

National sulfur oxide emissions rose fourteen percent between 1972 and 1974. These emissions were primarily due to manufacturing activities. Other sources of sulfur oxides throughout the nation remained relatively constant. States in the Old West Region experienced a decrease in sulfur oxide emissions due to reduced SO_x emission from coal powered electric generation and the primary metals (e.g., smelting/reduction) industry.

¹Conversations with Dana Mount, Robert Pipe and Gerald Blackwell, op. cit.

²Emissions are "calculated" by applying the measured emission levels of various industries and processes to the frequency with which that activity occurred in each state.

Table V-7

CALCULATED ANNUAL AIR POLLUTANT EMISSIONS
OLD WEST REGION AND NATION
 1972 and 1973-1974
 (in thousands of tons)

Emission Categories	Montana			Nebraska			North Dakota		
	1972	1973-1974	Percent Change	1972	1973-1974	Percent Change	1972	1973-1974	Percent Change
Particulates	304	353	+16	109	105	+4	87	85	-2
Sulfur Oxides	960	861	-11	64	83	+29	87	80	-8
Nitrogen Oxides	164	200	+21	113	166	+47	94	98	+4
Hydrocarbons	305	351	+15	147	148	+1	77	71	-8
Carbon Monoxide	703	1007	+43	661	771	+17	352	411	+17

	South Dakota			Wyoming		
	1972	1973-1974	Percent Change	1972	1973-1974	Percent Change
Particulates	59	60	-2	84	87	+4
Sulfur Oxides	19	15	-21	76	70	-8
Nitrogen Oxides	56	53	-5	80	102	+28
Hydrocarbons	101	85	-16	63	68	+8
Carbon Monoxide	433	463	+7	345	382	+11

	Old West Region			United States			Regional Emissions As Percent of Nation		
	1972	1973-1974	Percent Change	1972	1973-1974	Percent Change	1972	1973-1974	
Particulates	643	690	+9	19,790	16,829	-15	3.2	4.1	
Sulfur Oxides	1206	1109	-8	33,208	37,859	+14	3.6	2.9	
Nitrogen Oxides	507	619	+22	24,642	25,193	+2	2.0	2.4	
Hydrocarbons	693	723	+4	27,821	23,536	-15	2.5	3.0	
Carbon Monoxide	2494	3034	+21	106,701	104,798	-2	2.3	2.8	

Source: National Emissions Data System, EPA, Research Triangle Park, N.C., 1975, and Office of Air Quality Planning and Standards, 1972 National Emissions Report, EPA, Research Triangle Park, N.C., 1974.

The United States experienced a moderate overall increase in nitrogen oxide emissions between 1972 and 1974 as a result of passenger and freight transportation and industrial activity. The Old West Region showed a much larger increase in NO_x emissions. The petroleum and electric power generating industries were responsible for a disproportionately large amount of emissions in the Old West Region. Nebraska also contributed to high regional emissions due to increased vehicle transportation.

Lower national hydrocarbon emissions were largely the result of improved auto emission controls utilized during 1974. However, hydrocarbon emissions rose in Montana and Wyoming largely as a result of petroleum refining operations in these areas. The increase in regional carbon monoxide emissions was attributed to natural combustion (forest fires, agricultural and slash burning) in Wyoming and Montana and the number of vehicle miles traveled throughout the Region (particularly in Nebraska).

CHAPTER VI

PUBLIC EXPENDITURES-REVENUES

AND REGIONAL FACILITIES

The United States experienced a moderate overall increase in nitrogen oxide emissions between 1972 and 1974 as a result of passenger and freight transportation and industrial activity. The Old West Region showed a much larger increase in NO_x emissions. The petroleum and electric power generating industries were responsible for a disproportionately large amount of emissions in the Old West Region. Nebraska also contributed to high regional emissions due to increased vehicle transportation.

Lower national hydrocarbon emissions were largely the result of improved auto emission controls utilized during 1974. However, hydrocarbon emissions rose in Montana and Wyoming largely as a result of petroleum refining operations in these areas. The increase in regional carbon monoxide emissions was attributed to natural combustion (forest fires, agricultural and slash burning) in Wyoming and Montana and the number of vehicle miles traveled throughout the Region (particularly in Nebraska).

CHAPTER VI

PUBLIC EXPENDITURES-REVENUES

AND REGIONAL FACILITIES

6.1 Summary

The Old West Region generally follows the national pattern in terms of public expenditure and revenue growth. However, per capita public expenditures and revenues are generally higher in the Region in comparison with the nation, with such expenditures being especially high for highway and education activities but low for health and hospital activities.

In transportation, there appear to be no major regional deficiencies at present in air, highway, or rail facilities. However, most facilities serve east-west traffic patterns, and there are few major inter-modal or intra-modal interchanges to provide an impetus to regional development. In addition, there could be localized problems with transportation facilities. Such problems could have an important impact on the potential coal extraction localities if development of these areas continues to proceed rapidly.

Little growth in post secondary educational facilities is anticipated during the next ten years, but some shift in emphasis from four-year colleges and universities to junior and community colleges is likely if current trends continue. In recent years, there has been a decline in university and college enrollments and an increase in junior and community college enrollments. Also, there appear to be relatively few post secondary institutions offering skilled and semi-skilled occupational training courses in those areas associated with manufacturing, mining and construction activities.

The Region's hospitals are primarily small in size, and the larger health facilities are located in the larger cities and towns. The number of hospital beds has shown a moderate decline in recent years, but this activity is similar to national trends.

The Region is a net exporter of electrical power and relies heavily on hydro- and coal-fueled power plants. The Region's power facilities exported an estimated 20 percent of their 1973 production.

More specifically:

1. The Old West Region received \$5.2 billion in Federal funds in 1974; up from \$3.8 billion in 1968. However, in 1974, Federal expenditures for the Region declined 9 percent when compared with 1973. Approximately two-thirds of these funds originated from the DHEW, DOD, and USDA in declining magnitudes as listed. These same three agencies also accounted for two-thirds of the total Federal expenditures in the Region in 1968, but the sequence (by size of contribution) of agencies was reversed from the 1974 sequence. For state and local government expenditures, non-capital expenditures between 1964 and 1973 grew by over 130 percent while capital outlays grew by only 40 percent. These total state and local govern-

ment expenditures grew from \$1.6 billion in 1964 to \$3.2 billion in 1973 for the Region. The per capita expenditures by state and local government in the Region are higher than the national figures. Per capita expenditures are relatively higher in highways and education, but substantially lower for health and hospitals, sewage treatment and public welfare. On the other hand, per capita revenues have moved much closer to the national average in recent years from a higher level in past years. Relative to the national figures on sources of public revenues, property tax income in the Region is high.

2. There are at present 57 airports in the Region certified by the FAA to handle regularly scheduled commercial air passenger service. Another 181 publicly operated airports are presently equipped to handle general aviation. Only one additional certificated facility (Tri-City Airport in Nebraska) is planned over the next ten years. While the number of airports appears adequate, intra-regional service is sometimes difficult, and only general aviation facilities are available in the potential coal development areas. Connecting flights are often routed through Denver for service between two cities in the Region.
3. The per capita miles of highways and streets in the Region is high, with less than 2 percent of the nation's population and 10 percent of the miles of highway. Relative to the land area of the Region (13 percent of the nation), the miles of highway (10 percent of the nation) is relatively low. The Region has twice as much non-surfaced roadway as surfaced roadway, reflecting the rural nature of the Region. Except for the extreme eastern part of the Region, Interstate highways are primarily east/west in direction. Also, there are few highway interchange centers which could serve as a transportation focal point for the Region.
4. Approximately 10 percent of the nation's rail right-of-way is located in the Region, but the rail lines are primarily east/west in orientation. South Dakota has no through rail service, and, in fact, is without any rail passenger service. The potential for coal development could create competition for current rail service and could affect existing track and road beds. As with highways, there are few rail interchange centers which could serve as a transportation focal point in the Region.
5. There are currently 80 post secondary educational institutions in the Region, and these institutions are generally located in the larger cities. There has been a slight decline in enrollment at four-year institutions, but the junior and community colleges have shown substantial growth in recent years.

In addition, 261 vocational training institutions of various orientations are located in the Region. However, most of these offer only courses in fashions, cosmetology, flying, home study, etc., and there are only 40 technical institutes, trade or vocational schools.

6. Over 300 hospitals and health care facilities were providing in-patient services for the Region in 1973. These facilities tend to be located in cities and towns in proportion to the local population. Most of these facilities (74 percent) are relatively small (less than 100 beds) with limited facilities. However, 59 general treatment hospitals of over 100 beds currently operate in the Region. The number of hospital beds in the Region has shown a moderate decline in recent years, but this trend corresponds to a national trend to consolidate services to achieve economies of operation.
7. The percent of the total population using sewers in the Region is 71.7 percent, while the national figure is 72.6 percent. Nebraska substantially exceeds the national figure with 80.7 percent. The percent of total population which receives treated sewage services is 71 percent for the Region and 70.9 percent for the nation. In terms of the quality of the sewage treatment, however, the Region has better facilities than the nation as a whole. Secondary and tertiary sewage treatment facilities are more prevalent in the Region than the nation.
8. The Region has an extensive network of impoundments and hydroelectric generating plants. Hydro plants produce over 40 percent of the power generated in the Region, and the Region is a net exporter of power. Exports included an estimated 20 percent of the power generated in 1973, and Nebraska was the only State which did not export power in that year. By 1973, coal-fired power plants generated approximately the same amount of power as the hydroelectric plants. Natural gas, oil, and nuclear plants produced the remaining 20 percent of the Region's power.

6.2. Public Expenditures and Revenues

Total Federal expenditures for the Old West Region have grown steadily from \$3.8 billion in 1968 to over \$5.1 billion in 1974. These expenditures increased each year except for a minor reversal in 1971 and a more substantial (approximately 9 percent) reversal in 1974. This pattern of Federal Outlays is shown in Table VI-I.

In 1968, the USDA had the largest expenditures, followed by the DOD and DHEW, respectively. These three agencies combined represented approximately two-thirds of the Federal expenditures for 1968. For 1974, the expenditures for

Table VI-1
FEDERAL OUTLAYS BY AGENCY
OLD WEST REGION
1968-1978
(in thousands of current dollars)

Fiscal Year and Area	Agriculture	Commerce	Defense	HEW	HUD	Interior	Labor	DOT	Civil Service	EPA	OEO	Railroad Retirement Board	SEA	Veterans' Admin.	Other Agencies	Total
1968																
Region	1,057,217	6,267	713,421	741,984	144,644	143,829	27,132	205,933	38,001	--	30,238	46,363	33,392	209,581	368,603	3,806,665
Montana	22,550	3,559	149,828	138,251	27,481	43,103	7,350	54,795	7,790	--	5,710	11,229	4,944	36,309	56,163	735,421
Nebraska	372,976	765	251,830	286,241	66,849	16,539	6,916	34,795	15,031	--	15,647	19,475	9,300	80,725	150,498	1,355,544
North Dakota	324,399	550	163,038	166,044	17,802	19,650	4,581	26,436	4,609	--	3,350	5,712	7,001	29,219	54,425	746,975
South Dakota	187,569	1,056	88,207	146,835	19,550	28,195	5,236	38,685	6,833	--	4,212	3,782	6,436	39,695	54,662	634,953
Wyoming	43,974	827	50,518	54,613	12,962	36,342	2,839	43,325	3,738	--	1,319	6,165	5,711	21,633	52,855	336,321
Percent of Total	28.82	0.17	18.74	19.49	3.80	3.78	0.71	5.41	1.00	--	0.79	1.22	0.88	5.51	9.68	109.30
1969																
Region	1,478,531	9,797	641,768	870,611	128,443	165,602	33,223	227,590	42,696	--	24,340	50,325	37,003	226,052	371,350	4,247,411
Montana	22,041	4,611	134,282	163,015	27,123	38,321	7,314	75,355	8,940	--	5,628	11,765	4,917	42,672	60,430	725,464
Nebraska	428,549	1,210	252,633	331,904	51,609	33,620	10,672	40,692	16,256	--	10,637	21,440	8,534	87,070	135,872	1,478,025
North Dakota	327,425	1,643	136,560	143,616	19,978	22,885	5,649	30,831	5,220	--	2,372	6,364	9,765	31,618	59,373	585,335
South Dakota	277,425	1,643	65,955	170,099	17,033	38,352	6,077	41,474	7,521	--	4,347	4,057	7,041	41,054	61,307	737,435
Wyoming	51,060	618	50,338	61,977	12,700	42,424	3,511	39,238	4,189	--	1,356	6,699	6,746	23,678	54,358	359,032
Percent of Total	33.40	0.23	15.11	20.50	3.02	3.90	0.78	5.36	1.01	--	0.57	1.19	0.87	5.32	8.74	100.00
1970																
Region	1,329,428	12,111	825,595	977,147	20,712	175,153	188,059	243,086	47,922	--	14,204	52,129	1,590	197,812	379,344	4,453,303
Montana	225,010	3,232	143,048	182,070	7,068	44,167	18,384	92,874	10,193	--	3,938	12,219	306	35,619	64,459	825,368
Nebraska	453,963	1,391	235,634	367,837	2,958	21,223	121,951	39,943	18,838	--	3,910	22,209	339	72,279	142,955	1,532,235
North Dakota	386,908	4,858	309,168	156,453	6,477	28,281	13,565	38,358	5,748	--	2,298	6,520	330	25,199	67,260	1,061,423
South Dakota	214,148	1,521	76,051	201,349	2,159	35,709	32,648	38,015	8,433	--	3,302	4,165	346	42,156	64,122	724,124
Wyoming	38,464	1,109	57,634	69,438	1,250	45,773	1,511	34,346	4,710	--	755	7,016	269	25,559	38,638	325,533
Percent of Total	29.45	0.27	18.58	21.99	0.47	3.94	4.23	5.47	1.08	--	0.32	1.17	0.04	4.45	8.54	100.00
1971																
Region	1,225,201	15,260	753,479	1,120,895	28,341	195,566	63,045	227,305	55,156	20,890	15,315	62,747	7,370	215,151	408,452	4,314,159
Montana	122,155	5,924	142,939	214,000	4,689	51,309	12,407	85,174	12,161	6,709	3,904	14,821	2,064	40,037	72,164	785,637
Nebraska	452,331	5,845	267,520	426,772	2,988	36,055	9,170	36,361	6,593	12,127	2,053	7,848	1,765	74,553	155,273	1,572,537
North Dakota	353,038	1,549	185,252	213,765	10,843	36,055	9,170	36,361	6,593	1,038	2,843	7,848	1,059	28,701	70,818	795,552
South Dakota	224,231	1,848	93,148	215,268	4,640	51,046	8,913	35,621	9,441	498	3,255	4,897	1,832	46,639	72,181	721,854
Wyoming	44,556	1,084	68,139	82,568	3,021	50,616	5,153	34,152	5,435	518	1,484	8,518	850	24,821	37,917	364,482
Percent of Total	27.76	0.35	17.07	25.39	0.64	4.43	1.43	5.15	1.25	0.47	0.35	1.42	0.17	4.87	9.24	100.00
1972																
Region	1,467,159	14,121	1,034,998	1,297,060	42,979	211,103	78,554	256,841	62,547	15,269	13,133	71,630	9,229	238,713	244,269	5,057,625
Montana	222,911	6,756	336,135	245,498	8,962	58,417	20,532	67,864	14,097	1,205	3,865	16,218	1,013	41,693	47,026	1,052,313
Nebraska	491,179	1,552	287,420	497,772	12,034	12,585	21,801	50,837	24,008	3,981	3,749	30,505	2,217	94,914	93,039	1,617,593
North Dakota	460,404	1,860	207,723	217,091	12,232	39,188	13,327	45,025	7,394	2,736	1,592	9,015	934	30,609	39,503	1,028,633
South Dakota	246,497	2,461	128,655	241,273	5,986	44,799	15,111	46,939	10,704	5,244	3,175	5,424	3,352	53,120	41,922	854,722
Wyoming	46,168	1,492	75,085	95,446	3,745	56,114	7,683	46,176	6,244	2,103	752	10,168	1,713	28,317	22,779	403,965
Percent of Total	29.01	0.28	20.46	25.65	0.85	4.17	1.55	5.08	1.24	0.30	0.26	1.42	0.18	4.72	4.83	100.00
1973																
Region	1,214,408	23,195	988,428	1,572,522	74,862	237,127	75,791	224,114	73,471	6,117	13,808	81,410	73,025	271,699	584,074	5,514,051
Montana	166,282	3,539	188,606	310,044	3,085	69,520	15,782	68,491	20,731	1,518	3,062	18,447	1,335	46,726	101,763	587,662
Nebraska	422,590	7,345	314,179	573,755	8,279	13,621	18,234	49,050	27,961	3,961	4,198	34,901	2,835	100,221	223,109	1,813,335
North Dakota	337,925	4,240	233,727	240,176	3,048	43,407	13,950	34,904	8,728	181	2,456	10,348	971	35,781	99,768	1,059,519
South Dakota	207,390	3,532	107,272	309,628	56,086	52,848	12,173	38,762	12,653	402	3,396	6,156	67,002	57,667	104,641	1,039,608
Wyoming	43,622	1,672	184,895	170,628	3,163	57,491	8,430	36,363	7,598	278	696	11,558	882	31,304	54,793	613,294
Percent of Total	22.02	0.42	17.93	28.52	1.36	4.30	1.37	4.06	1.33	0.11	0.25	1.48	1.32	4.93	10.59	100.00
1974																
Region	774,213	18,896	980,143	1,644,106	14,696	257,551	67,732	244,820	90,572	26,355	5,640	89,136	9,046	256,813	647,528	5,156,259
Montana	166,282	3,539	188,606	310,044	3,085	69,520	15,782	68,491	20,731	1,518	3,062	18,447	1,335	46,726	101,763	587,662
Nebraska	422,590	7,345	314,179	573,755	8,279	13,621	18,234	49,050	27,961	3,961	4,198	34,901	2,835	100,221	223,109	1,813,335
North Dakota	337,925	4,240	233,727	240,176	3,048	43,407	13,950	34,904	8,728	181	2,456	10,348	971	35,781	99,768	1,059,519
South Dakota	207,390	3,532	107,272	309,628	56,086	52,848	12,173	38,762	12,653	402	3,396	6,156	67,002	57,667	104,641	1,039,608
Wyoming	43,622	1,672	184,895	170,628	3,163	57,491	8,430	36,363	7,598	278	696	11,558	882	31,304	54,793	613,294
Percent of Total	14.99	0.37	18.97	31.82	0.28	4.99	1.31	4.74	1.75	0.51	0.11	1.71	0.17	5.75	12.53	100.00

Source: Federal Outlays (for various years and states), Executive Office of the President, Office of Economic Opportunity, Washington, D.C.

these three agencies still combined to represent approximately two-thirds of the Federal expenditures. However, the order of the agencies changed, and DHEW had the largest expenditures while DOD and USDA followed in sequence.

Despite the large amounts of Federal land in the Region, much of which is administered by the Department of the Interior, the expenditures by Interior were less than 4 percent of the total Federal expenditures for 1968 and less than 5 percent of the total for 1974.

Table VI-2 indicates the expenditures by state and local governments in the Region for 1964-1973. These figures indicate that the non-capital expenditures are growing more rapidly than capital expenditures. Non-capital outlays grew by about 130 percent from 1964 to 1973, while capital outlays grew by about 40 percent.

The non-capital costs in education and health care have more than doubled over the 1964-1973 time period. However, the relative order of non-capital expenditures has remained approximately constant; education is the largest, followed by highways, health care, public welfare, and sewage disposal.

Table VI-3 provides per capita state and local government expenditures in the Region and the nation for the 1964-1973 time period. Per capita expenditures by state and local government are relatively high in the Region compared to the nation. However, this condition is to be expected because of the low population density and large distances between cities and towns which characterize the Region. These expenditures in the Region are necessarily higher per capita to provide comparable public services to the population of the Region.

The per capita state and local government expenditures are particularly high in highways and education, but not for health and hospitals (except in Wyoming), sewage (except for Montana and Nebraska), and public welfare.

Table VI-4 provides data on total and per capita revenues of state and local governments for the Region for 1964-1973. Historically, the per capita revenues have been higher than the national figure, but in recent years the Region's figure has dropped slightly below the U.S. figure. However, Montana and Wyoming have remained above the national figure through recent years. Also, per capita revenues from the Federal Government have been higher than the national figure for all States in the Region except in the more populous and urbanized State of Nebraska.

Per capita property tax revenues for the Region have historically exceeded the national figure. North Dakota's per capita property tax revenues have consistently been closer to the national figure than the other States. The Region's per capita tax revenues from non-property taxes have historically been lower than the national figure for the

Table VI-2
EXPENDITURES BY STATE AND LOCAL GOVERNMENTS
OLD WEST REGION
1964-1973
(in millions of current dollars)

Fiscal Year and Area	Expenditure			Education				Other		Highway		Health and Hospital		Sewage		Public Welfare		All Other	
	Total	Capital Outlays	Non Cap. Outlays	Total		Local Schools		Higher Ed.		Other		Highway		Health and Hospital		Sewage			
				Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.		
1964-1965																			
Region	1,633.8	498.8	1,135.0	106.2	531.1	74.0	391.6	31.4	126.2	0.8	13.3	340.4	125.0	6.9	69.6	10.5	5.7	92.0	346.4
Montana	327.2	109.3	217.9	22.6	105.9	16.6	79.7	5.8	24.2	0.2	2.0	77.7	20.8	0.3	11.9	1.1	1.0	17.6	68.3
Nebraska	505.5	134.9	370.6	35.3	176.8	26.0	133.2	8.8	38.5	0.5	5.1	76.1	41.7	2.5	28.7	6.4	2.3	30.0	104.7
North Dakota	299.8	83.5	216.3	22.8	90.5	15.0	63.2	7.7	24.6	0.1	2.7	54.7	20.0	0.3	8.7	1.0	0.8	19.4	81.6
South Dakota	293.2	94.1	199.1	17.5	96.0	11.4	70.8	6.1	23.0	--	2.2	69.6	28.3	1.5	8.0	1.5	0.9	17.4	52.5
Wyoming	208.1	77.0	131.1	8.0	61.9	5.0	44.7	3.0	15.9	--	1.3	62.3	14.2	2.3	12.3	0.5	0.7	7.6	38.3
1965-1966																			
Region	1,753.5	502.2	1,251.3	115.9	601.8	67.6	433.6	46.8	150.5	1.4	17.8	323.1	133.3	5.7	74.3	10.5	6.1	105.6	377.2
Montana	345.3	112.4	232.9	18.3	115.4	9.3	86.0	8.9	26.9	0.1	2.6	80.5	21.7	1.4	12.3	1.6	1.1	20.2	72.8
Nebraska	569.0	149.8	419.2	41.8	199.0	22.8	148.5	17.7	45.1	1.3	5.4	78.3	45.5	2.7	31.5	5.3	2.5	35.8	126.5
North Dakota	309.7	76.3	233.4	20.1	104.0	15.0	70.9	5.1	30.4	--	2.7	45.8	22.0	1.0	9.3	2.5	0.7	21.4	82.9
South Dakota	300.1	81.1	219.0	17.4	111.0	12.1	79.9	5.3	28.3	--	2.8	58.1	29.2	0.1	7.6	1.6	0.4	19.7	55.8
Wyoming	229.4	82.6	146.8	18.3	72.3	8.4	48.3	9.8	19.8	--	4.3	60.4	14.9	0.5	13.6	0.7	1.0	8.5	39.2
1966-1967																			
Region	1,928.3	555.9	1,372.4	138.1	662.6	81.5	461.7	53.9	177.1	2.9	23.6	331.0	137.4	15.0	76.4	19.2	8.5	111.7	428.4
Montana	357.0	112.7	244.3	22.6	117.8	12.0	86.1	10.5	28.4	0.2	3.2	73.6	22.3	0.5	14.1	4.7	1.5	20.0	79.9
Nebraska	629.9	168.8	461.1	36.9	222.9	16.7	161.3	17.7	54.3	2.5	7.3	91.6	45.7	10.8	31.2	6.7	3.4	37.2	143.5
North Dakota	373.1	110.1	263.0	40.2	111.3	30.7	72.3	9.4	35.3	0.1	3.7	56.6	22.6	0.8	10.0	1.9	1.3	24.0	104.4
South Dakota	332.4	88.6	243.8	23.3	124.9	16.3	85.8	7.1	34.0	--	5.0	55.9	31.2	0.6	9.4	4.4	1.3	21.4	60.0
Wyoming	235.9	75.7	160.2	15.1	85.7	5.8	56.2	9.2	25.1	0.1	4.4	53.3	15.6	2.3	11.7	1.5	1.0	9.1	40.6
1967-1968																			
Region	2,051.8	537.1	1,514.7	131.7	754.4	66.4	518.2	63.1	205.2	2.1	31.1	312.1	140.4	11.3	91.4	19.1	8.3	124.6	458.4
Montana	383.4	106.9	276.5	24.3	139.3	11.7	99.4	12.5	35.2	0.1	4.8	65.2	22.8	0.6	15.3	4.6	1.3	24.5	85.3
Nebraska	666.4	157.3	509.1	38.2	249.3	15.8	175.7	20.8	64.2	1.6	9.4	73.9	48.1	6.6	40.5	7.4	3.9	40.5	158.0
North Dakota	378.7	102.0	276.7	31.9	123.2	17.7	79.0	13.8	39.2	0.4	5.0	58.4	21.6	0.8	11.3	2.9	1.3	26.4	100.9
South Dakota	368.4	94.0	274.4	21.2	149.2	13.4	103.1	7.7	39.8	--	6.3	60.9	31.5	2.1	9.5	4.1	1.1	22.8	66.0
Wyoming	254.9	76.9	178.0	16.1	93.4	7.8	61.0	8.3	26.8	--	5.6	53.7	16.4	1.2	14.8	0.1	0.7	30.3	48.2
1968-1969																			
Region	2,254.9	567.8	1,687.1	134.6	835.6	79.2	563.4	52.7	227.1	2.8	45.0	301.5	156.8	11.9	110.7	18.9	9.1	137.7	538.1
Montana	402.8	109.6	293.2	20.8	144.0	11.8	101.7	8.6	37.5	0.4	4.8	73.4	22.7	1.3	16.9	4.1	1.6	28.0	90.0
Nebraska	668.4	162.0	506.4	45.7	307.2	25.9	210.9	17.8	74.9	2.1	21.3	73.5	53.5	6.3	50.6	8.0	4.6	45.1	173.9
North Dakota	384.4	84.7	299.1	26.7	134.4	16.5	85.3	9.9	41.6	0.3	7.5	43.5	26.6	1.2	11.9	1.9	1.1	28.3	108.8
South Dakota	395.8	97.9	297.9	28.0	155.9	19.8	104.8	8.2	45.6	--	5.6	57.3	35.9	1.5	11.3	3.9	1.0	26.0	75.0
Wyoming	303.5	113.6	189.9	13.4	94.1	5.2	60.7	8.2	27.5	--	5.8	53.8	18.1	1.6	20.0	1.0	0.8	10.3	90.4
1969-1970																			
Region	2,444.5	584.1	1,860.4	137.7	925.2	82.4	630.8	54.1	248.6	1.3	45.7	344.8	172.6	8.7	122.2	19.1	9.5	159.2	545.5
Montana	469.0	133.4	335.6	20.5	166.1	14.4	116.2	5.7	42.9	0.4	7.0	92.2	25.3	1.3	18.5	3.9	1.6	34.2	105.4
Nebraska	853.2	193.0	660.2	58.8	323.9	35.3	230.5	22.8	78.3	0.7	15.1	90.0	59.2	5.5	53.9	7.0	4.7	55.8	194.4
North Dakota	405.7	88.6	317.1	23.8	152.7	11.5	96.1	12.3	47.0	--	9.6	49.1	30.2	0.5	14.2	3.6	1.2	28.6	101.8
South Dakota	425.4	97.2	328.2	23.0	174.2	16.5	119.1	6.4	48.6	0.1	6.5	60.3	36.6	0.8	13.9	3.7	1.1	28.8	83.0
Wyoming	291.2	71.9	219.3	11.6	108.3	4.7	68.9	6.9	31.8	0.1	7.5	53.2	21.3	0.6	21.7	0.9	0.9	11.8	60.9

Table VI-2 (con't)

EXPENDITURES BY STATE AND LOCAL GOVERNMENTS
OLD WEST REGION
1964-1973
(in millions of current dollars)

Fiscal Year and Area	Expenditure					Education										Health and Hospital				Sewage		Public Welfare	All Other
	Total	Capital Outlays	Non Cap. Outlays	Total		Local Schools		Higher Ed.		Other		Highway		Cap. Non Cap.		Cap. Non Cap.		Cap. Non Cap.					
				Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.	Cap.	Non Cap.				
1970-1971																							
Region	2,772.9	634.0	2,138.9	129.3	1,069.9	68.4	723.1	58.8	297.3	1.9	49.7	411.4	185.8	8.8	144.0	14.0	11.2			206.4	385.5		
Montana	533.7	142.3	391.4	23.5	198.9	8.8	133.7	14.5	54.6	0.2	19.6	102.8	27.4	2.6	20.6	3.0	1.4			40.6	113.0		
Nebraska	980.6	205.7	774.9	47.0	372.5	34.5	261.1	12.3	97.8	0.2	13.6	116.9	63.4	3.7	69.1	5.8	6.4			74.8	221.0		
North Dakota	453.7	107.3	346.4	22.6	171.4	7.2	105.5	15.2	53.8	0.1	12.2	69.8	33.9	0.5	15.2	2.8	1.3			35.3	100.9		
South Dakota	485.4	106.1	379.3	25.5	201.6	13.6	138.7	10.7	57.1	1.2	5.8	67.9	39.8	0.7	16.2	1.1	1.1			38.7	92.8		
Wyoming	319.5	72.6	246.9	10.7	125.5	4.3	84.1	6.1	34.0	0.2	7.5	54.0	21.3	1.3	22.9	1.3	1.0			17.0	64.5		
1971-1972																							
Region	3,003.0	634.1	2,368.9	119.5	1,167.0	65.6	797.3	51.9	317.3	2.1	52.3	396.5	197.1	7.7	160.3	19.4	11.5			229.6	694.4		
Montana	586.8	151.8	435.0	14.8	216.5	7.4	150.1	7.1	53.0	0.4	13.3	108.8	30.5	0.7	23.0	1.3	1.7			44.9	144.6		
Nebraska	1,511.8	197.5	854.3	40.9	402.9	25.1	277.4	15.0	109.8	0.8	16.2	111.1	68.2	3.5	72.2	12.8	6.5			90.8	242.9		
North Dakota	475.4	96.3	379.1	20.8	181.2	10.5	114.4	10.2	54.5	0.1	12.4	57.1	34.5	0.6	16.2	3.5	1.2			38.2	122.1		
South Dakota	520.6	107.6	413.0	29.2	219.5	15.1	151.1	13.4	62.5	0.7	5.8	61.3	43.1	1.1	17.9	1.3	1.2			40.9	105.1		
Wyoming	368.4	80.9	287.5	13.8	146.9	7.5	104.7	6.2	37.5	0.1	4.6	58.2	20.8	1.8	31.0	0.5	0.9			14.8	79.7		
1972-1973																							
Region	3,224.9	706.2	2,518.7	132.4	1,229.6	64.6	827.3	66.2	342.5	1.4	60.0	399.9	206.7	13.0	169.9	44.5	15.2			249.5	764.2		
Montana	639.8	174.3	465.5	19.3	231.6	10.0	161.3	9.1	56.4	0.3	13.9	97.1	31.0	4.4	27.2	16.1	2.2			47.8	163.1		
Nebraska	1,127.2	216.1	911.1	41.1	422.4	24.0	281.8	16.3	121.9	0.8	18.7	112.3	72.7	5.1	74.3	20.5	8.5			100.9	269.4		
North Dakota	515.1	114.1	401.0	25.1	188.0	11.3	113.9	13.7	58.6	0.1	15.5	67.0	33.4	0.3	18.1	5.4	1.6			39.5	136.7		
South Dakota	559.8	124.1	435.7	32.4	225.3	12.6	154.8	19.5	64.0	0.2	6.5	70.4	46.8	0.9	20.4	2.1	1.6			45.4	114.5		
Wyoming	383.0	77.6	305.4	14.5	162.3	6.7	115.5	7.6	41.6	--	5.4	53.1	22.8	2.3	29.9	0.4	1.3			15.9	80.5		

Source: U.S. Bureau of the Census, Governmental Finances, Series FG 73, U.S. Government Printing Office, Washington, D.C.

Table VI-3

PER CAPITA STATE AND LOCAL
GOVERNMENT EXPENDITURES
OLD WEST REGION AND NATION
1964-1973
(in current dollars)

Fiscal Year and Area	Direct General Expenditure	Education				Highway	Health and Hospital	Sewage	Public Welfare	All Other
		Total	Local School	Higher Ed.	Other					
1964-65										
Montana	463.50	181.95	136.36	42.49	3.09	139.52	17.22	3.02	24.93	96.86
Nebraska	342.16	143.55	107.76	32.01	3.76	79.74	21.14	5.89	20.33	71.51
North Dakota	359.84	173.80	120.02	49.47	4.30	114.53	13.82	2.82	29.75	125.12
South Dakota	417.01	161.43	116.93	41.37	3.11	139.23	13.49	3.37	24.70	74.79
Wyoming	611.85	205.43	146.02	55.50	3.89	225.02	42.93	3.53	22.34	112.60
United States	384.62	147.37	113.33	30.25	3.79	63.05	27.66	8.09	32.58	138.45
U.S. Median State	391.53	143.55	107.76	29.27	3.79	70.51	23.51	7.07	28.24	118.65
1965-66										
Montana	491.91	190.50	135.70	50.94	3.85	145.63	19.52	3.85	28.72	103.69
Nebraska	390.80	165.43	117.64	43.16	4.63	85.03	23.47	5.35	24.62	86.90
North Dakota	476.46	190.98	132.18	54.62	4.17	104.25	15.81	4.87	32.85	127.70
South Dakota	440.04	188.21	134.85	49.30	4.06	128.07	11.26	1.76	28.90	81.84
Wyoming	697.09	275.26	172.37	89.92	12.95	228.81	42.86	5.18	25.91	119.07
United States	422.97	169.95	128.10	36.79	5.04	65.20	30.17	8.71	34.50	114.44
U.S. Median State	422.15	165.43	123.25	35.82	4.82	73.99	25.52	7.84	29.86	119.51
1966-67										
Montana	509.22	200.30	139.91	55.53	4.84	136.80	20.79	8.88	28.53	113.92
Nebraska	438.98	181.05	124.02	50.20	6.81	95.68	29.24	7.01	25.93	100.07
North Dakota	583.89	237.08	161.21	69.89	5.97	124.00	16.88	4.97	37.63	163.33
South Dakota	493.13	219.94	151.47	60.99	7.46	129.22	14.82	8.38	31.67	89.10
Wyoming	748.83	319.85	196.91	108.73	14.20	218.77	44.53	7.96	28.96	128.76
United States	473.82	193.19	141.81	44.51	6.85	70.51	33.58	8.39	41.68	126.47
U.S. Median State	472.44	185.49	137.31	49.99	6.81	80.15	28.42	7.65	33.65	137.08

Table VI-3 (con't)
PER CAPITA STATE AND LOCAL
GOVERNMENT EXPENDITURES
OLD WEST REGION AND NATION
1964-1973
(in current dollars)

Fiscal Year and Area	Direct General Expenditure	Education				Highway	Health and Hospital	Sewage	Public Welfare	All Other
		Total	Local School	Higher Ed.	Other					
1967-68										
Montana	553.29	236.16	160.28	68.76	7.11	126.99	22.97	8.44	35.43	123.30
Nebraska	463.75	200.05	133.24	59.18	7.63	84.86	32.76	7.84	28.20	110.04
North Dakota	605.88	248.08	154.58	84.84	8.65	127.94	19.32	6.70	42.31	161.53
South Dakota	560.66	259.28	177.33	72.31	9.63	140.61	17.64	7.90	34.74	100.49
Wyoming	809.24	347.62	218.43	111.43	17.74	222.46	50.74	2.54	32.83	153.05
United States	512.41	205.93	146.63	51.11	8.19	72.46	37.76	8.67	49.32	138.27
U.S. Median State	509.81	200.05	143.15	53.05	8.38	80.62	32.34	7.56	38.89	150.35
1968-69										
Montana	580.42	237.47	163.49	66.43	7.55	138.44	26.28	8.18	40.38	129.67
Nebraska	530.29	243.55	163.41	63.99	16.14	87.67	39.23	8.66	31.10	120.08
North Dakota	625.07	261.91	165.58	83.71	12.60	113.97	21.26	4.88	46.09	176.96
South Dakota	600.55	279.12	189.11	81.58	8.43	141.47	19.41	7.50	39.45	113.60
Wyoming	948.49	335.80	206.01	111.68	18.10	224.73	67.58	5.54	32.13	282.71
United States	577.94	233.77	167.15	57.21	9.58	76.35	42.19	9.38	59.97	156.28
U.S. Median State	576.31	223.61	161.77	61.46	9.14	84.09	36.07	7.87	45.32	179.35
1969-70										
Montana	675.37	268.69	188.04	69.97	10.67	169.23	28.46	7.92	49.20	151.87
Nebraska	575.05	257.95	179.14	68.16	10.64	100.55	40.02	7.91	37.61	131.01
North Dakota	656.82	285.77	174.18	96.01	15.57	128.37	23.75	7.83	46.36	164.74
South Dakota	638.47	296.06	203.64	82.56	9.84	145.43	22.02	7.18	43.22	124.56
Wyoming	875.99	360.80	221.36	116.42	23.00	224.25	67.11	5.51	35.55	182.77
United States	646.31	259.43	184.35	63.60	11.47	80.84	47.57	10.66	72.24	175.57
U.S. Median State	617.68	258.71	182.04	67.76	10.73	88.07	40.05	9.06	54.33	167.46

Table VI-3 (con't)
PER CAPITA STATE AND LOCAL
GOVERNMENT EXPENDITURES
OLD WEST REGION AND NATION
1964-1973
(in current dollars)

Fiscal Year and Area	Direct General Expenditure	Education					Health and Hospital	Sewage	Public Welfare	All Other
		Total	Local School	Higher Ed.	Other	Highway				
1970-71										
Montana	753.78	313.94	201.22	97.53	15.18	183.95	32.73	6.24	57.32	159.60
Nebraska	648.51	277.45	195.48	72.84	9.12	119.21	48.17	8.07	49.49	146.12
North Dakota	725.88	310.44	180.32	110.38	19.73	165.93	25.17	6.60	56.52	161.22
South Dakota	724.42	338.91	227.36	101.14	10.40	160.70	25.24	3.25	57.82	138.50
Wyoming	939.64	400.52	260.06	117.84	22.61	221.42	71.22	6.77	50.12	189.59
United States	730.52	288.05	202.49	71.68	13.87	87.73	54.32	12.82	88.36	199.24
U.S. Median State	690.33	285.16	198.24	73.23	13.05	95.29	45.73	11.00	69.25	183.90
1971-72										
Montana	816.15	321.67	218.98	83.59	19.08	193.78	32.96	4.23	62.46	201.05
Nebraska	689.73	291.03	198.07	81.84	11.11	117.60	49.63	12.62	59.53	159.32
North Dakota	752.26	319.68	197.58	102.31	19.78	144.95	26.65	7.44	60.40	193.14
South Dakota	766.78	366.27	244.82	111.85	9.60	153.73	27.98	3.62	60.21	154.97
Wyoming	1,067.70	465.71	325.35	126.61	13.73	229.09	95.04	4.17	42.91	230.78
United States	801.38	311.60	219.27	76.57	15.76	91.29	61.79	15.17	101.19	220.32
U.S. Median State	740.68	315.67	210.49	76.80	14.76	98.99	49.63	11.06	74.20	191.13
1972-73										
Montana	887.42	348.05	237.53	90.89	19.64	177.73	43.78	25.33	66.35	226.18
Nebraska	731.02	300.58	198.31	89.61	12.66	120.00	51.49	18.80	65.41	174.74
North Dakota	804.84	332.96	195.58	113.04	24.34	156.83	28.74	10.96	61.72	213.63
South Dakota	818.44	376.72	244.81	122.09	9.82	171.33	31.19	5.48	66.31	167.41
Wyoming	1,084.91	500.72	346.24	139.24	15.24	214.93	91.34	4.92	45.10	227.90
United States	862.93	331.53	232.49	82.10	16.94	88.70	65.97	17.17	112.37	247.19
U.S. Median State	801.18	332.96	226.50	82.07	15.24	96.96	53.91	13.78	79.99	223.58

Source: See Table VI-1.

Table V1-4
TOTAL AND PER CAPITA REVENUE OF STATE AND LOCAL GOVERNMENTS
OLD WEST REGION AND NATION
1964-1973
(in current dollars)

Fiscal Year and Area	Total Revenue ¹		Intergovernmental Revenue from Federal Government		T a x e s				Charges and Miscellaneous	
	Per		Per		Property		Other		Per	
	Amount (millions)	Capita	Amount (millions)	Capita	Amount (millions)	Capita	Amount (millions)	Capita	Amount (millions)	Capita
1964-65										
Region	1,612.0	415.7	367.5	94.8	569.3	146.8	368.0	94.9	307.2	79.2
Montana	322.3	456.6	84.4	119.6	107.7	152.5	79.0	112.4	50.9	72.1
Nebraska	494.1	334.5	75.3	51.0	230.5	156.1	94.1	63.7	94.2	63.8
North Dakota	300.2	460.4	57.8	88.6	30.0	122.7	81.9	125.7	80.5	123.5
South Dakota	284.7	404.9	70.3	100.0	98.3	139.8	71.0	101.0	45.1	64.5
Wyoming	210.7	619.2	79.7	234.3	52.8	155.2	41.7	122.6	36.5	107.4
United States	74,000.8	381.8	11,028.9	56.9	22,583.4	116.5	28,659.3	147.9	11,729.1	60.5
U.S. Median State		389.0		62.4		116.1		138.2		
1965-66										
Region	1,737.1	454.9	372.3	97.5	617.5	161.7	408.7	107.0	338.6	88.7
Montana	347.7	495.1	85.8	122.2	114.1	162.5	89.5	127.4	58.3	83.0
Nebraska	558.6	383.6	90.7	62.3	258.6	177.6	102.3	70.3	107.0	73.5
North Dakota	310.0	476.8	56.3	86.6	84.3	129.6	84.3	129.7	85.1	130.9
South Dakota	299.4	439.1	64.8	95.0	104.6	153.4	83.3	122.2	46.7	68.4
Wyoming	221.4	673.0	74.7	227.1	55.9	169.8	49.3	149.8	41.5	126.2
United States	83,035.9	424.0	13,120.4	67.0	24,670.1	126.0	32,070.5	163.7	13,174.9	67.3
U.S. Median State		427.5		76.2		121.0		154.3		68.2
1966-67										
Region	1,890.6	502.3	421.9	112.1	651.2	173.0	428.6	113.9	388.9	103.3
Montana	360.1	513.5	89.8	128.0	117.2	167.2	92.9	132.5	60.2	85.8
Nebraska	628.5	438.1	116.5	81.2	280.8	195.7	109.3	76.2	121.9	85.0
North Dakota	346.3	541.9	69.5	108.7	84.0	131.4	86.4	135.2	106.5	166.6
South Dakota	322.9	479.0	72.1	107.0	104.1	154.4	89.8	133.2	56.9	84.4
Wyoming	232.8	738.9	74.0	234.8	65.1	206.8	50.2	159.4	43.4	137.9
United States	91,626.3	463.1	15,504.9	78.3	26,279.1	132.8	34,961.7	176.7	14,880.6	75.2
U.S. Median State		463.5		85.7		128.6		164.9		75.1

Table VI-4 (cont)

TOTAL AND PER CAPITA REVENUE OF STATE AND LOCAL GOVERNMENTS
OLD WEST REGION AND NATION
1964-1973
(in current dollars)

Fiscal Year and Area	Total Revenue ¹		Intergovernmental Revenue from		T a x e s				Charges and Miscellaneous	
	Amount (millions)	Per Capita	Amount (millions)	Per Capita	Property Amount (millions)	Per Capita	Other Amount (millions)	Per Capita	Amount (millions)	Per Capita
1967-68										
Region	2,092.6	561.5	437.4	117.4	680.5	182.6	561.0	150.5	413.7	111.3
Montana	390.9	564.1	88.7	128.0	132.8	191.6	102.7	148.1	66.8	96.4
Nebraska	716.8	498.8	118.2	82.2	268.0	186.5	198.2	137.9	132.5	92.2
North Dakota	375.9	601.5	72.5	116.0	94.8	151.7	102.7	164.4	105.9	169.4
South Dakota	358.6	545.7	83.5	127.1	119.4	181.8	95.2	145.0	60.4	91.0
Wyoming	250.4	794.6	74.5	236.6	65.5	207.9	62.2	197.6	48.1	152.8
United States	101,264.3	506.7	17,181.3	86.0	27,747.3	138.9	39,824.3	199.3	16,511.4	82.6
U.S. Median State	502.2		90.8		137.0			181.2		84.9
1968-69										
Region	2,277.2	609.4	452.6	121.1	723.6	193.6	617.9	165.4	483.1	129.3
Montana	405.2	583.7	93.2	134.3	134.8	194.2	109.1	157.2	68.1	98.1
Nebraska	808.0	557.6	114.7	79.2	291.6	201.2	233.2	160.9	168.6	116.3
North Dakota	394.2	640.8	72.4	117.8	100.2	163.0	107.7	175.1	113.8	185.0
South Dakota	390.6	592.8	88.8	134.8	134.2	203.6	98.3	149.2	69.3	105.2
Wyoming	279.2	872.5	83.5	261.0	62.8	196.1	69.6	217.6	63.3	197.8
United States	114,550.1	567.4	19,152.6	94.9	30,673.3	151.9	46,038.6	228.0	18,685.6	92.5
U.S. Median State	544.0		96.1		149.1			211.3		93.3
1969-70										
Region	2,534.0	667.8	504.0	132.8	781.8	206.0	724.3	190.9	523.9	138.1
Montana	473.5	681.9	121.8	175.5	149.9	215.9	126.4	182.0	75.4	108.5
Nebraska	911.1	614.1	127.3	85.8	309.6	208.7	278.7	187.8	195.5	131.7
North Dakota	418.6	677.6	78.0	126.2	108.1	174.9	124.0	200.8	108.5	175.7
South Dakota	433.5	650.7	92.6	139.0	145.8	218.8	119.5	179.3	75.7	113.6
Wyoming	297.3	894.4	84.3	253.6	68.4	205.9	75.7	227.7	68.8	207.1
United States	130,755.7	643.5	21,857.5	107.6	34,054.5	167.6	52,740.8	259.6	22,102.9	108.7
U.S. Median State	636.1		115.4		162.3			230.8		108.5

Table VI-4 (cont)

TOTAL AND PER CAPITA REVENUE OF STATE AND LOCAL GOVERNMENTS
OLD WEST REGION AND NATION
1964-1973
(in current dollars)

Fiscal Year and Area	Total Revenue ¹		Intergovernmental Revenue from Federal Government		T a x e s				Charges and Miscellaneous		
	Amount (millions)	Per Capita	Federal Government		Property		Other		Amount (millions)	Per Capita	
			Amount (millions)	Per Capita	Amount (millions)	Per Capita	Amount (millions)	Per Capita			
1970-71											
Region	2,848.5	738.9	613.2	159.1	856.9	222.3	813.2	211.0	565.2	146.6	
Montana	526.4	743.4	148.4	209.5	166.4	235.0	132.9	187.7	78.7	111.1	
Nebraska	1,027.6	679.6	159.2	105.3	334.4	221.2	318.4	210.6	215.6	142.6	
North Dakota	483.9	774.2	116.2	185.9	117.6	188.2	144.6	231.4	105.5	168.7	
South Dakota	484.0	722.3	103.3	154.1	160.9	240.1	130.8	195.2	89.0	132.8	
Wyoming	326.6	960.7	86.1	253.2	77.6	228.4	86.5	254.5	76.4	224.7	
United States	144,927.5	702.7	26,145.8	126.8	37,851.8	183.5	57,123.3	277.0	23,806.5	115.4	
U.S.Median State		684.8	132.4		178.4			254.5		117.9	
1971-72											
Region	3,103.8	795.9	661.9	169.7	899.6	230.7	919.4	235.7	622.9	159.7	
Montana	619.7	861.9	163.7	227.7	185.0	257.3	182.3	253.6	88.7	123.3	
Nebraska	1,101.8	722.5	176.8	115.9	347.7	228.0	343.6	225.3	233.7	153.2	
North Dakota	494.8	783.0	109.6	173.4	111.7	176.8	159.7	252.7	113.8	180.1	
South Dakota	533.0	785.1	115.4	170.0	168.4	248.1	144.7	213.1	104.5	153.9	
Wyoming	354.5	1,027.5	96.4	279.3	86.8	251.6	89.1	258.4	82.2	238.3	
United States	166,352.3	798.9	31,252.7	150.1	42,133.0	202.3	66,667.6	320.1	26,299.1	126.3	
U.S.Median State		736.4	159.9		189.0			282.1		126.6	
1972-73											
Region	3,484.0	884.3	829.9	210.6	937.4	237.9	1,046.9	265.7	670.0	170.1	
Montana	682.1	946.1	200.9	278.6	192.2	266.6	188.0	260.6	101.1	140.2	
Nebraska	1,242.4	805.7	220.3	142.9	365.9	237.3	410.1	266.0	246.1	159.6	
North Dakota	578.4	903.7	142.7	223.0	117.0	182.8	183.3	286.4	135.4	211.5	
South Dakota	596.4	871.9	156.6	228.9	175.0	255.9	164.2	240.0	100.7	147.2	
Wyoming	384.7	1,089.8	109.4	310.0	87.3	247.2	101.3	287.1	86.7	245.7	
United States	190,176.6	906.3	39,255.7	187.1	45,282.5	215.8	75,819.1	360.1	29,819.3	142.3	
U.S.Median State		857.5	187.9		196.2			324.0		141.5	

¹ Does not include utility, liquor stores, and insurance trust revenues.

Source: U.S. Bureau of the Census, Governmental Finances, Series GF 73, U.S. Government Printing Office, Washington, D.C., annual publication, various years.

1964-1973 time period. However, Wyoming has generally been closer to the national figure than the other States for per capita tax revenues from non-property sources.

For charges and miscellaneous per capita revenues, the Region has consistently maintained a higher figure than the comparable national figure. Wyoming and North Dakota have usually led the other States in these non-tax revenues.

6.3 Transportation Facilities

6.3.1 Air Transportation

With the great distances that exist between many of the Region's cities and towns, air transportation has become an integral part of the regional transportation picture. As of 1975, there are 57 airports in the Region certified by the Federal Aviation Administration to handle regularly scheduled commercial air passenger service (see Table VI-5). Another 181 publicly operated airports are presently equipped to handle general aviation traffic, ranging in size from single engine private planes to small (ten to fifteen passenger) corporate jets. In addition, there are also numerous private air fields throughout the Region capable of handling light aircraft.

Montana currently operates 15 certificated airports (facilities approved by the Federal Aviation Administration to handle scheduled air passenger service), the most of any State in the Region. Nebraska and Wyoming each operate 13 certificated facilities, while South Dakota and North Dakota are operating 9 and 7 certificated airports, respectively. Of Montana's 15 certificated facilities, 8 are presently handling commercial jet aircraft (primarily Boeing 727's and 737's and DC-9's). Currently, Nebraska operates 5 jet ports; North Dakota has 6; South Dakota 5 and Wyoming 6. Figure VI-1 depicts the location of the Region's certificated airports.

There is general agreement among officials of the respective State aeronautical commissions that the five States presently have the airport facilities required to handle current and projected (through 1985) commercial air traffic. This attitude is clearly reflected in the most recent projections for airport facility development (see Table VI-5). Only Nebraska plans any facility construction (certificated facilities) over the next ten years; planning the construction of one new jet port (Tri-City Airport) and the upgrading of 8 existing facilities to handle commercial jets. Nebraska is also the only State planning to develop a significant number of general aviation facilities with a capacity for handling small jet aircraft. The State Aeronautical Commission projects that 19 of its general airports will be capable of handling small jet craft by 1980 (Montana anticipates the development of 2 such facilities between 1975 and 1985).

Table VI-5
PUBLIC AIRPORTS
OLD WEST REGION
1975, 1980, 1985

Jurisdiction	MAXIMUM CAPACITY			Small (less than 12,500 lbs.) Propeller Driven (single and twin engine) Craft
	Commercial Jets and Smaller Craft	Commercial Turbo-Prop and Smaller Craft	Small (less than 12,500 lbs.) Jets and Prop Aircraft	
Region				
- 1975	30	27	2	179
- 1980	33	24	19	211
- 1985	42	16	21	254
Montana ¹				
- 1975	8	7	-	39
- 1980	8	7	-	46
- 1985	8	7	2	56
Nebraska ²				
- 1975	5	8	2	73
- 1980	5	8	19	62
- 1985	14	-	19	81
North Dakota ¹				
- 1975	6	1	-	30
- 1980	6	1	-	49
- 1985	6	1	-	53
South Dakota ³				
- 1975	5	4	-	22
- 1980	5	4	-	37
- 1985	5	4	-	46
Wyoming ¹				
- 1975	6	7	-	15
- 1980	6	7	-	17
- 1985	6	7	-	18

¹ Figures for Montana, North Dakota and Wyoming reflect the most recent projections submitted by these States to the Federal Aviation Administration (projections on file at the FAA as of May 29, 1975). It should be noted that this data may be as much as 4 years old and thus, may not reflect revised projections which are currently being developed by the respective state agencies.

² Figures for Nebraska reflect most recent projections of the Nebraska Aeronautics Commission (projections as of July 1, 1975).

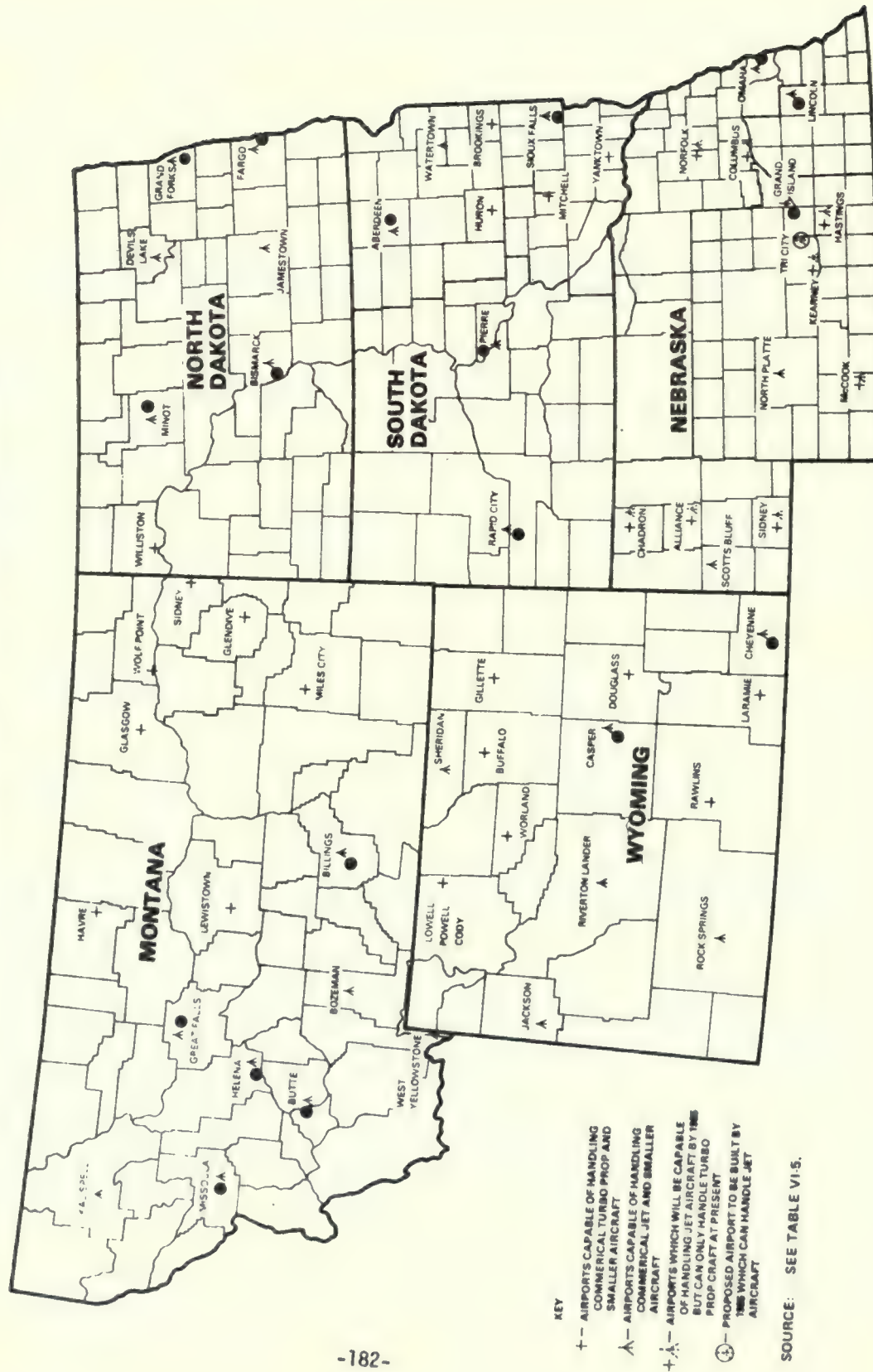
³ Figures for South Dakota reflect most recent Projections of the South Dakota Department of Transportation, Division of Aeronautics (projections as of July 1, 1975).

Source: "National Airport System Plan - Master File Verification Report", Federal Aviation Administration, Washington, D.C., May, 1975.

"State Airport System Plan for the State of Nebraska" (as revised), Nebraska Aeronautics Commission; Lincoln, Nebraska, July 1, 1975.

Memorandum from the Chief Aviation Planner, South Dakota Department of Transportation (Division of Aeronautics), dated July 18, 1975.

FIGURE VI-1
CERTIFICATED AIRPORT FACILITIES: EXISTING AND PROJECTED
THROUGH 1985—OLD WEST REGION



While it appears that the Region has an adequate number of airport facilities (both certificated and general aviation airports), the Region is faced with certain significant air transportation problems. The major problem currently confronting the Region is the lack of direct air routes between many cities (with certificated airports) within and outside of the Region (see Figures VI-2 and VI-3) and the subsequent effect this insufficiency has had on passenger travel. For example, to fly from Salt Lake City, Utah, to Bismarck, North Dakota, involves 6 hours of travel time with one stop over in Denver (there are no direct flights between Salt Lake City and Bismarck), while a flight from Salt Lake City to New York City takes only 4 hours and 20 minutes (non-stop). Even more indicative of the problem is the fact that to fly from Omaha, Nebraska to Billings, Montana, two of the Region's major cities, involves some 5 hours and 15 minutes with a stop over in Denver (there are no direct flights between Omaha and Billings).

Another problem that could confront the Region is the fact that no certificated airports currently exist or are planned for construction during the next ten years in the coal impacted areas of Montana, North Dakota and Wyoming (the Gillete, Buffalo and Douglas airports currently handle only light commuter aircraft). Should coal development continue to occur, as expected, this lack of facilities in the area could pose some problems. However, it should be pointed out that Sheridan, Miles City and Billings do have certificated airports. These airports lie along the perimeter of major coal areas in Montana and Wyoming, and two of these airports currently handle commercial jet aircraft.

6.3.2 Highway Transportation

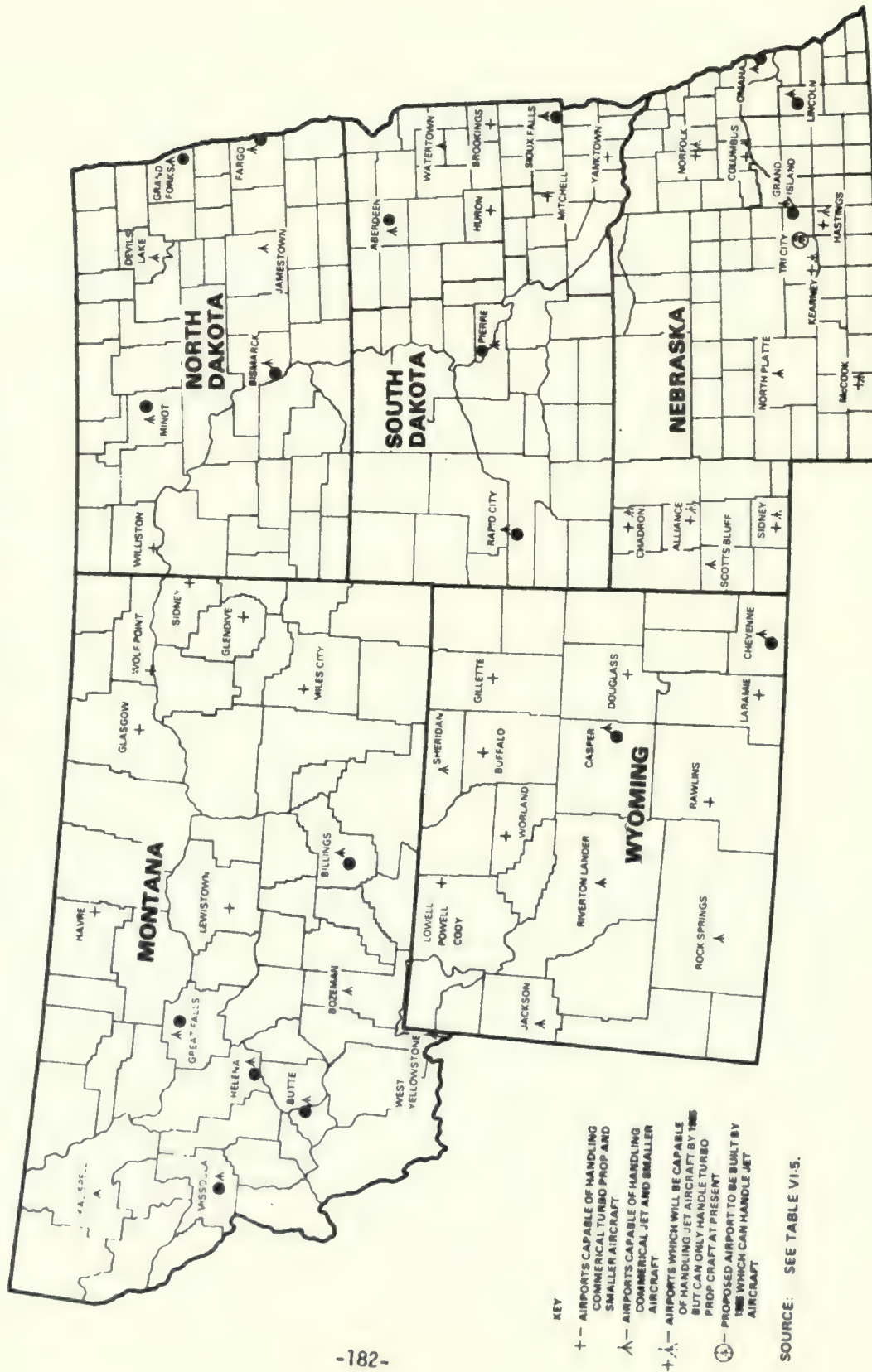
Figure VI-4 illustrates the location of Interstate and major United States highways in the Old West Region. The number of miles of surfaced and non-surfaced roadway contained in the rural and urban areas of each State is shown in Table VI-6. "Surfaced" road types include all variations of artificial surface quality (gravel, asphalt, concrete, etc.), whereas "non-surfaced" roads are dirt roads only. Surface mileage data for the year 1973 were the most current available from the U.S. Department of Transportation.

Approximately 10 percent of the nation's 3.8 million miles of total roadway are located in the Old West Region, which contains 13.1 percent of the national land area. The rural nature of the Region is reflected by the fact that the regional percentage of the nation's non-surfaced roadway (17.4 percent) is almost double that of its surfaced roadway proportion (8.9 percent). In addition, regional urban roads comprise only 2.4 percent of the national total.

Within the Region, the largest amount of total roadway is contained in the eastern plains States. The more mountainous States (Montana and Wyoming) have the least amount of total roads with Wyoming containing less than one-half of the roadway as either North Dakota, South Dakota or Nebraska.

A generalized measure of the existence of sufficient highway transportation facilities is the number of miles of existing road per

FIGURE VI-1
CERTIFICATED AIRPORT FACILITIES: EXISTING AND PROJECTED
THROUGH 1965—OLD WEST REGION



While it appears that the Region has an adequate number of airport facilities (both certificated and general aviation airports), the Region is faced with certain significant air transportation problems. The major problem currently confronting the Region is the lack of direct air routes between many cities (with certificated airports) within and outside of the Region (see Figures VI-2 and VI-3) and the subsequent effect this insufficiency has had on passenger travel. For example, to fly from Salt Lake City, Utah, to Bismarck, North Dakota, involves 6 hours of travel time with one stop over in Denver (there are no direct flights between Salt Lake City and Bismarck), while a flight from Salt Lake City to New York City takes only 4 hours and 20 minutes (non-stop). Even more indicative of the problem is the fact that to fly from Omaha, Nebraska to Billings, Montana, two of the Region's major cities, involves some 5 hours and 15 minutes with a stop over in Denver (there are no direct flights between Omaha and Billings).

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6.3.2 Highway Transportation

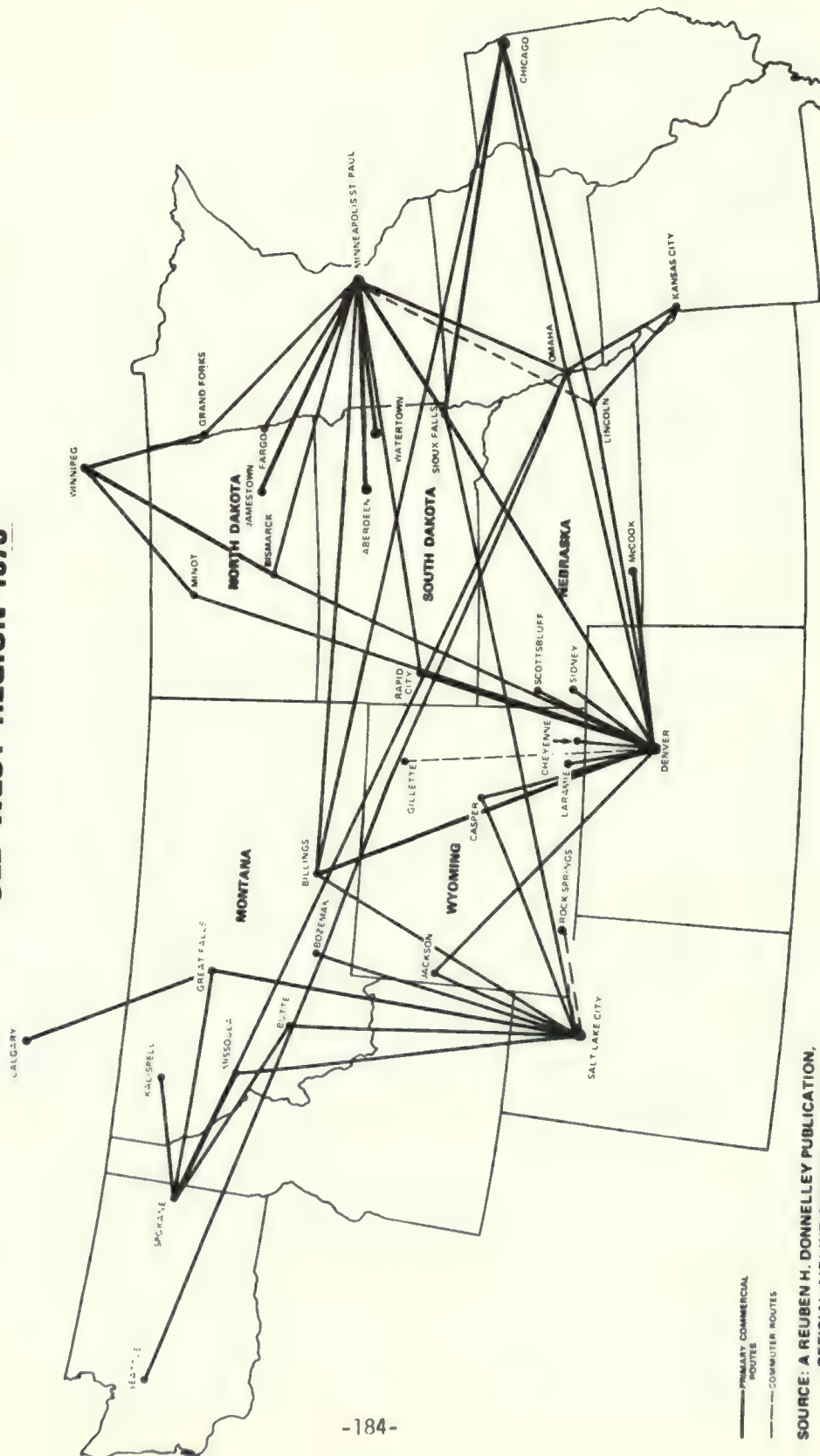
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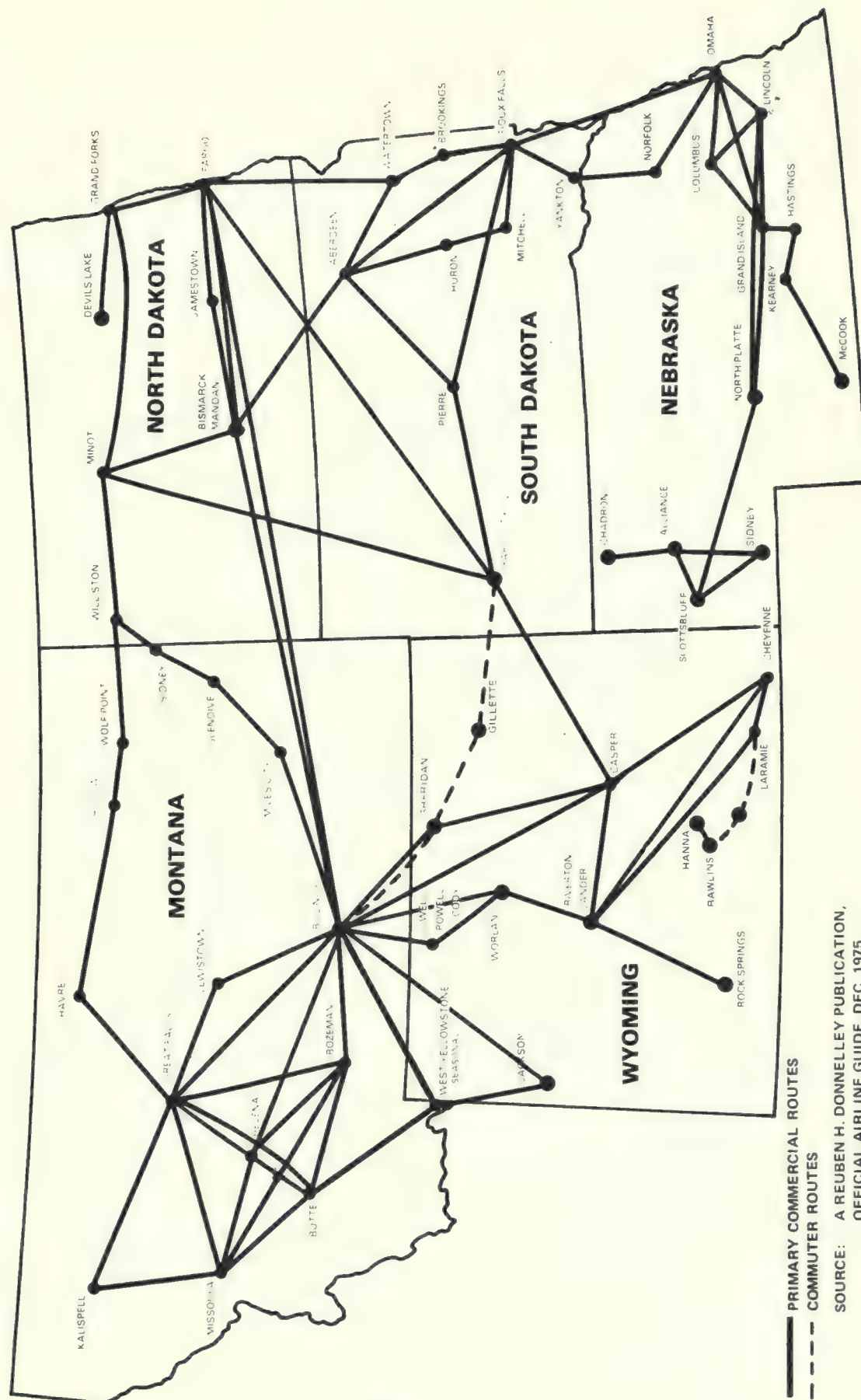
A generalized measure of the existence of sufficient highway transportation facilities is the number of miles of existing road per

FIGURE VI-2
INTER-REGIONAL AIR ROUTES OF SCHEDULED AIR CARRIERS
OLD WEST REGION 1975



SOURCE: A REUBEN H. DONNELLEY PUBLICATION,
 OFFICIAL AIRLINE GUIDE, DEC., 1975

FIGURE VI-3
INTRA-REGIONAL AIR ROUTES OF SCHEDULED AIR CARRIERS
OLD WEST REGION 1975



— PRIMARY COMMERCIAL ROUTES
 --- COMMUTER ROUTES

SOURCE: A REUBEN H. DONNELLEY PUBLICATION,
 OFFICIAL AIRLINE GUIDE, DEC. 1975.

FIGURE VI-4
INTERSTATE AND U.S. HIGHWAYS—OLD WEST REGION 1975

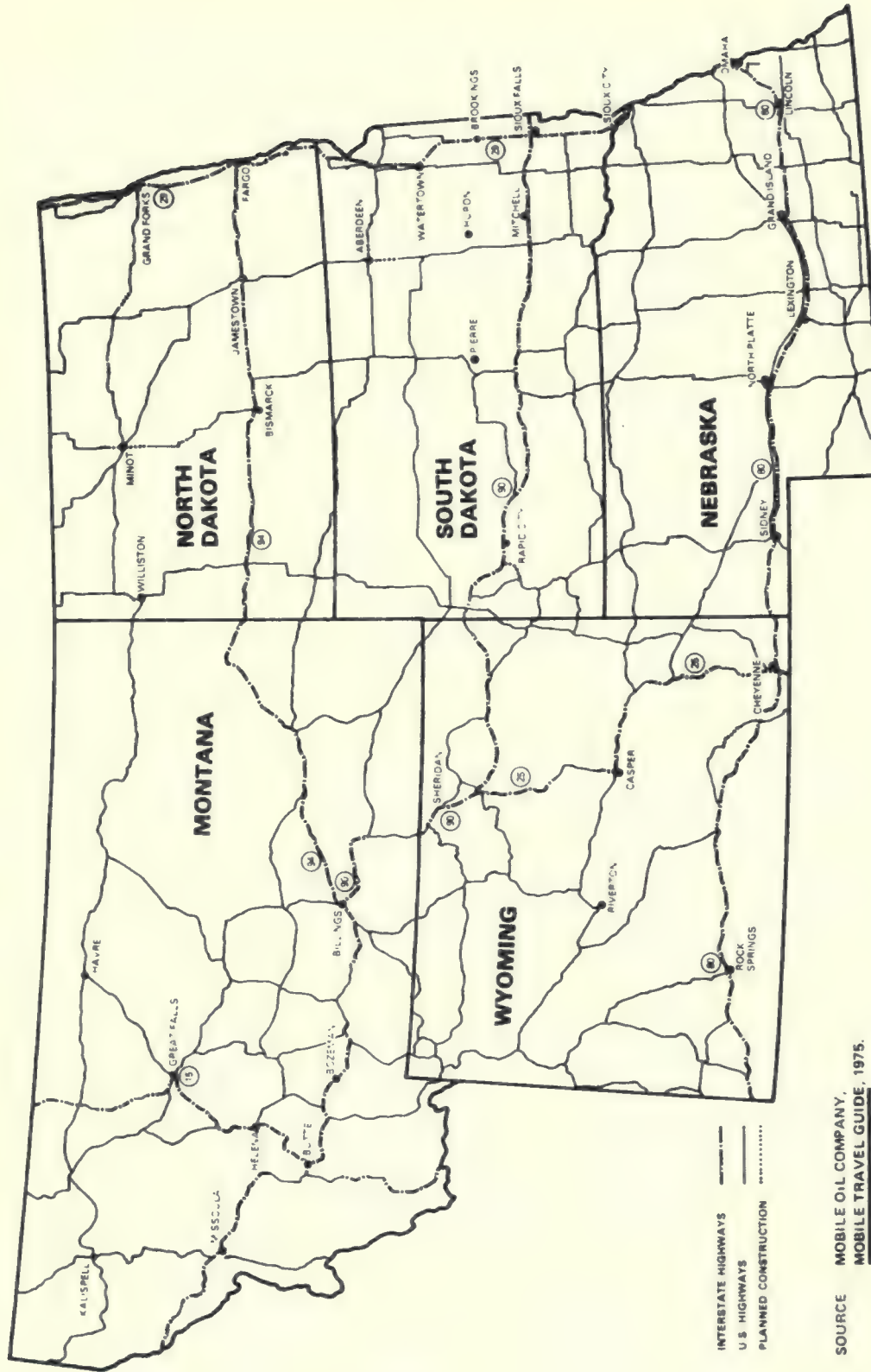


Table VI-6
MILES OF ROADS
OLD WEST REGION
1973

Area	Rural ¹			Urban ¹			Total		
	Surfaced	Non-Surfaced	Total	Surfaced	Non-Surfaced	Total	Surfaced	Non-Surfaced	Total
Region Percent of Nation	256,435 10.5	132,220 17.9	388,655 12.2	16,008 2.6	805 3.1	16,813 2.4	272,443 8.9	133,025 17.4	405,468 10.5
Montana	42,764	32,788	75,552	2,178	202	2,380	44,942	32,990	77,932
Nebraska	71,423	19,652	91,075	6,693	199	6,892	78,116	19,851	97,967
North Dakota	67,206	35,819	103,025	3,020	202	3,222	70,226	36,021	106,247
South Dakota	58,515	21,191	79,706	2,935	79	3,014	61,450	21,270	82,720
Wyoming	16,527	22,770	39,297	1,182	123	1,305	17,709	22,893	40,602

¹ Includes all roadway within incorporated boundaries.

Source: Office of Highway Statistics, U.S. Department of Transportation, 1975.

thousand square miles of area. Table VI-7 shows that in the nation there were 688 miles of surfaced roads and 209 miles of non-surfaced roads per thousand square miles of area in 1973. Although the amount of surfaced roads per thousand square miles of area in the Old West Region was 20 percent less than the national figure, the miles of non-surfaced road in the Region was 35 percent greater than that of the nation. The largest number of total roadway miles per thousand square miles of area in the Old West Region were located in the eastern States and were a result of the greater amount of surfaced roads located in that portion of the Region.

6.3.3 Rail Transportation

The railroads have been instrumental in the development of the Old West Region. Through the years, they have served as a principal mode of intra- and inter-regional passenger transportation. More importantly, the railroads have effectively linked the Region's agricultural and other industries with their respective suppliers and markets (both within and outside the Region). Although initial railroad construction in the Region was only intended to link the eastern and western segments of the transcontinental railroad (intra-regional service was at first only a bi-product of this effort), the regional rail network that has subsequently evolved is now an integral part of the Region's economy.

In one respect, the Region's rail network is similar to the regional network of highways. As illustrated in Figure VI-5, all but two of the Region's main line roads (the Burlington Northern roads from Billings, Montana, to Cheyenne, Wyoming, and Lincoln, Nebraska) run in an east-west direction. There are no main lines running north-south through the three eastern States (the two Dakotas and Nebraska). This east-west orientation is based primarily on the fact that markets for the Region's agricultural products and raw mineral ores lie to the east (Minneapolis, Des Moines, Kansas City, St. Louis and Chicago).

The Region presently contains 10 percent of the total miles of all the railroad right-of-way in the nation. As shown in Table VI-8, Nebraska has slightly more miles (5,335) of right-of-way than either North Dakota (5,079) or Montana (4,900). South Dakota, lacking a main line road which transects the entire State, contains only 3,363 miles of right-of-way (16.4 percent of the Regional total). Wyoming, on the other hand, has only 1,780 miles of main line road, even though it contains major segments of two Burlington Northern and one Union Pacific line.

Over the next ten years, it is expected that the amount of rail traffic within the Region will increase significantly. This expectation is based upon industry projections which anticipate gradually increasing demand for the transportation of agricultural products as well as an increasing demand for the transportation of coal. For example, one

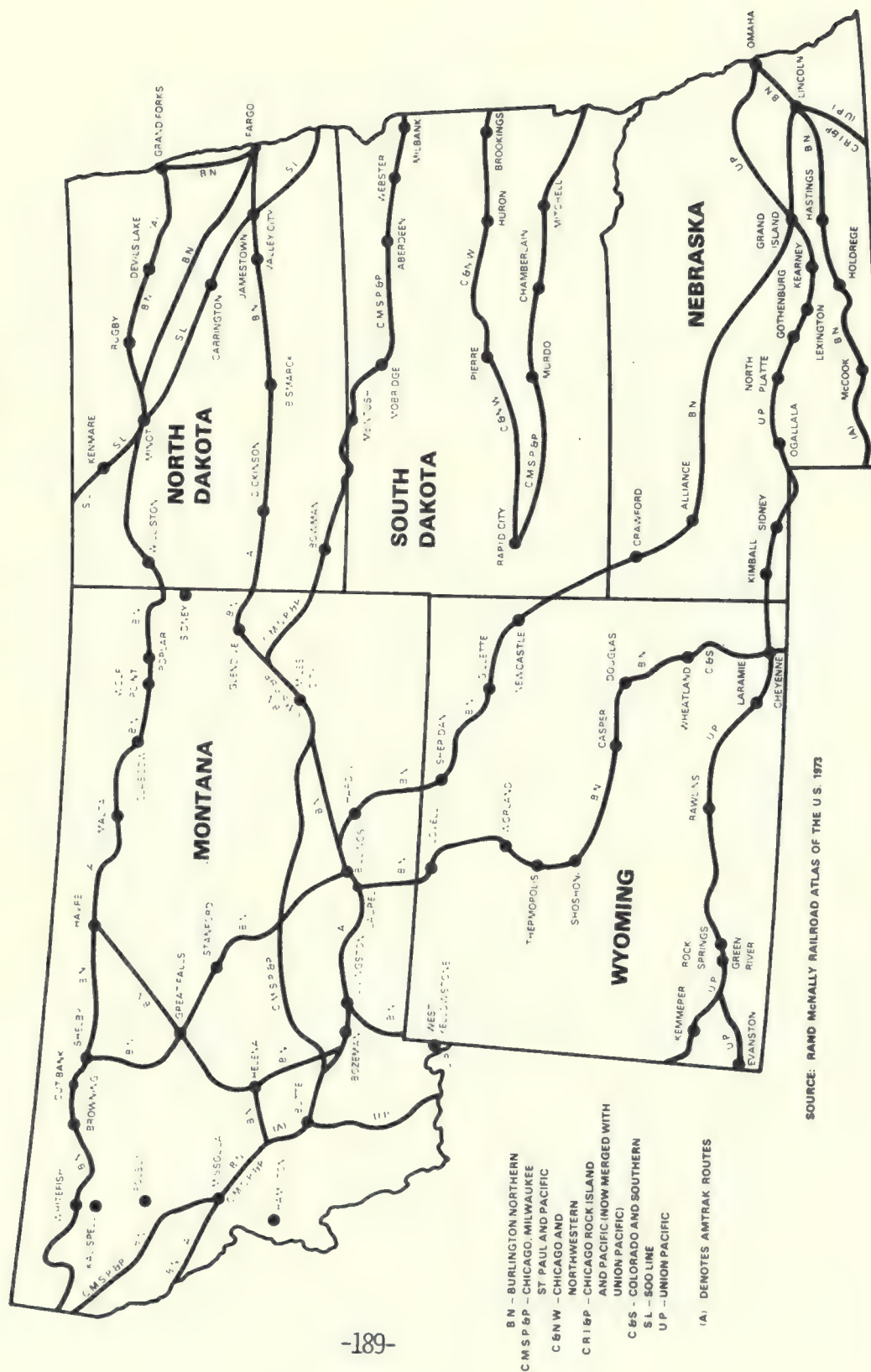
Table VI-7

MILES OF RURAL AND URBAN ROADS
 PER 1,000 SQUARE MILES OF AREA
 1973

Region (Proportion of nation)	<u>Surfaced</u>	<u>Non-Surfaced</u>	<u>Total</u>
	552 (80.2%)	284 (135%)	836 (93%)
Montana	293	225	518
Nebraska	933	257	1,190
North Dakota	970	517	1,487
South Dakota	770	279	1,049
Wyoming	170	235	404
United States	688	209	897

Source: Office of Highway Statistics U.S. Department of Transportation, 1975

FIGURE VI-5
MAIN LINE RAILROADS—OLD WEST REGION



SOURCE: RAND McNALLY RAILROAD ATLAS OF THE U.S. 1973

Table V1-8

MILES OF RAILROAD RIGHT-OF-WAY
OLD WEST REGION
1973

Region	20,465
Montana	4,900
Nebraska	5,335
North Dakota	5,079
South Dakota	3,363
Wyoming	1,780
United States	201,585

Note: In this instance, "Right-of-Way" is defined as the lineal measure of land upon which track has been laid, excluding yard track and siding.

Source: Association of American Railroads, 1975.

estimate indicates that by 1980, 200,000 tons of coal per week will be hauled by train through Lincoln, Nebraska.

This projected increase in the demand for regional rail service poses several potential problems. For example, some of the Region's main line track and many of its secondary or spur lines are reported to be in substandard condition. Considerable concern has been expressed by the Federal Railroad Administration that the anticipated increase in the frequency and loads of rail service over some of these tracks will result in further track and roadbed deterioration, thereby affecting safety and efficiency. Should the demand for transporting coal increase dramatically, it is also possible that a problem could occur with regard to the railroads' ability (at least in the short-run) to handle the transport of both agricultural products and coal in the Region.

6.4 Educational Facilities

As of 1974, there were 80 academic institutions in the Old West Region offering post secondary educational programs (see Table VI-9). Of these 80 institutions, 54 were classified as major colleges or universities, offering undergraduate and graduate degree programs in various courses of study. Another 26 institutions were categorized as junior or community colleges, which offered associate degree programs in a variety of technical and business related fields as well as the social sciences. As illustrated in Figure VI-6, the overwhelming majority of these post secondary institutions (both major and junior or community colleges) were located in the Region's larger cities and towns. Nebraska (as might be expected, given the relative populations of the five States) had the greatest number of institutions with 28 (20 major colleges; 8 junior colleges), while Wyoming had only 8 post secondary institutions.

From the figures shown in Table VI-9, it is clear that almost no new construction of post secondary facilities has occurred in the last few years. In fact, Nebraska actually had one less major college facility operating in 1974 (20) than it did in 1970 (21). Only North Dakota increased its complement of major colleges in 1974 (9) over its 1970 (8) level. Conversely, North Dakota reduced its number of junior or community colleges by one (7 facilities in 1970, 6 in 1974), while Nebraska was operating two (2) additional junior or community colleges in 1974. Since none of the other three States had any change in their number of post secondary institutions between 1970 and 1974, the regional net increase in the number of post secondary facilities over this period was only one.

Enrollments in the Region's major colleges and universities declined slightly between 1970 and 1974. As of 1970, over 147 thousand students were enrolled in degree programs at the Region's 54 major colleges and universities. In 1974, only 142 thousand students were

Table VI-9
COLLEGES AND UNIVERSITIES
NUMBER AND ENROLLMENT
OLD WEST REGION
1970 AND 1974

	Region			Montana			Nebraska			North Dakota			South Dakota			Wyoming		
	1970	1974	Percent Change	1970	1974	Percent Change	1970	1974	Percent Change	1970	1974	Percent Change	1970	1974	Percent Change	1970	1974	Percent Change
Colleges and Universities																		
Number	54	54	+ 0	9	9	+ 0	21	20	- 4.8	8	9	+ 8.3	15	15	+ 0	1	1	+ 0
Enrollment	147,595	142,067	- 3.8	25,677	25,018	- 2.6	60,465	59,374	- 1.8	23,244	22,900	- 1.5	29,790	26,804	- 10.0	8,419	7,371	- 12.3
Junior and Community Colleges																		
Number	25	26	+ 4.0	3	3	+ 0	6	8	+ 33.3	7	6	- 14.3	2	2	+ 0	7	7	+ 0
Enrollment	17,756	23,849	+ 34.3	1,847	2,361	+ 27.8	3,252	6,816	+109.6	5,583	6,999	+ 25.4	355	452	+ 28.7	6,719	7,221	+ 7.5
All Institutions of Higher Education																		
Number	79	80	+ 1.3	12	12	+ 0	27	28	+ 3.7	15	14	- 6.7	17	17	+ 0	8	8	+ 0
Enrollment	165,351	165,916	+ 0.3	27,324	27,379	+ 0.2	63,717	66,190	+ 3.9	28,827	29,899	+ 3.7	30,145	27,256	- 9.6	15,138	15,192	+ 0.4
Age 18-24 (U.S. %)	0.38			0.36			0.37			.39			.40			.41		
Institutions of Higher Education with enrollment of 1,000 or more																		
Number	37	35	- 5.4	8	6	- 25.0	11	12	+ 9.1	7	6	- 14.3	8	7	- 12.5	3	4	+ 33.3
Enrollment	142,871	139,779	- 2.2	25,453	23,220	- 8.8	53,979	56,456	+ 4.6	25,216	24,770	- 1.8	25,490	22,192	- 12.9	12,733	13,141	+ 3.2

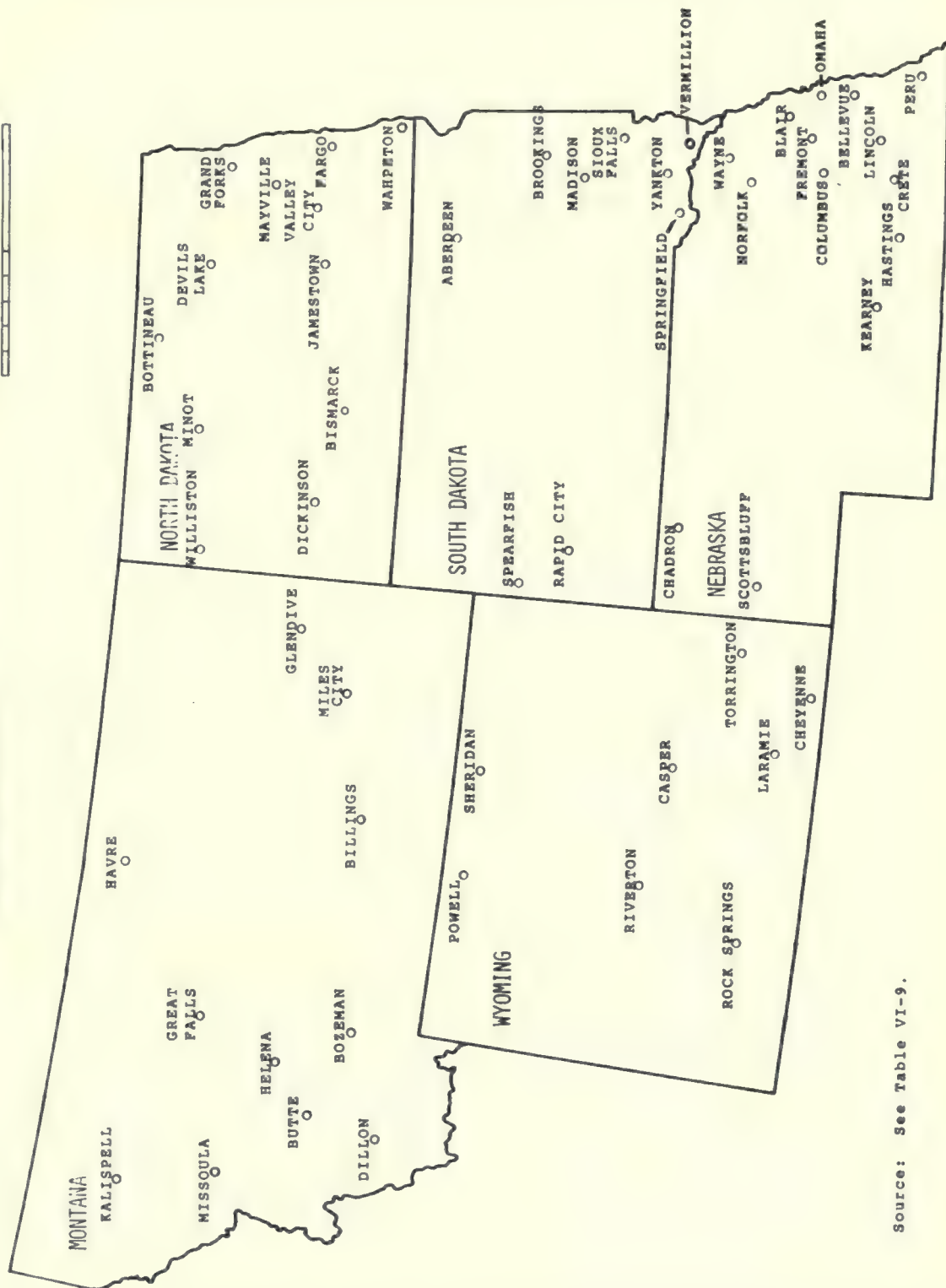
Note: Data excludes non-degree candidates.

Source: National Center for Educational Statistics, Office of Education, Higher Education-Educational Directory 1974-75; U.S. Department of Health, Education and Welfare, Washington, D.C., 1975; and National Center for Educational Statistics, Office of Education, Higher Education-Educational Directory 1970-71; U.S. Department of Health, Education and Welfare, Washington, D.C., 1971.

FIGURE VI-6

CITIES WITH COLLEGES OR UNIVERSITIES OF ENROLLMENT 500 OR MORE
OLD WEST REGION 1974

THE OLD WEST REGION
0 100 200



Source: See Table VI-9.

enrolled in such institutions, representing a 3.8 percent decrease in the total student population.

While major college enrollments experienced a slight decline, junior and community colleges in the Region saw their enrollments rise significantly over the same period (an increase of 34 percent). For example, Nebraska's junior and community college enrollments increased by 109 percent over the four-year period, due in part to the addition of two new facilities. While their percentage increases were not as great, Montana (27.8 percent), North Dakota (25.4 percent) and South Dakota (52.7 percent) all experienced sizable increases in junior and community college enrollments. Of particular note is the fact that North Dakota achieved its 25 percent increase in enrollments while closing one of its facilities.

In addition to the colleges and universities offering academic degree programs, the Region also contains a number of post secondary schools which offer occupational training programs. As indicated in Table VI-10, 261 institutions in the Region offered such programs of various types to residents during 1974. However, the majority of these schools (146 or 56 percent) are classified "other" which includes courses in cosmetology, flying and fashion, home study courses, and courses for the mentally retarded. There were, in fact, only 40 post secondary institutions (i.e., technical institutes, trade schools, and vocational education schools) offering skilled and semi-skilled occupational training courses in those areas most associated with manufacturing, mining and construction activities. Figure VI-7 reflects the general lack of such facilities throughout the Region. Such schools are generally inaccessible to the large rural population in the Region, and many urban centers also lack such facilities. The coal-rich areas of the Region are especially devoid of these more technical institutions. The majority of these occupational training schools are located in the more densely populated areas of the Region (see Figure VI-7). Nebraska has 43 schools (excluding "other") providing technical, vocational, business or hospital training, 24 of which are located in the cities of Omaha and Lincoln. Wyoming, on the other hand, has only five such schools in the entire State. Enrollments in Nebraska's 43 institutions totals over 8 thousand as compared to a total enrollment of under 600 in Wyoming's five institutions.

6.5 Health Care Facilities

Over 300 hospitals and health care facilities were actively providing in-patient medical care for residents of the Region as of 1973 (see Table VI-11).¹ Included in this number were 29 Federal facilities (DOD, Veterans Administration and Public Health Service hospitals), 83 hospitals operated by state and local governments, and 215 privately administered institutions. As evidenced by these figures, much of the Region has depended (at least as of 1973) upon private hospitals to provide the necessary medical services. For example, North Dakota had no locally sponsored public hospitals in operation as of 1973. Private hospitals in Montana and South Dakota outnumbered their public counter-

¹

The availability of medical professionals in the Region is discussed in Chapter VII.

Table VI-10

POST SECONDARY SCHOOLS WITH OCCUPATIONAL PROGRAMS
OLD WEST REGION
1974

Type of School ¹	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	Number	Enrollment	Number	Enrollment	Number	Enrollment	Number	Enrollment	Number	Enrollment	Number	Enrollment
Technical Institute ²	3	2,518	0	0	2	2,088	0	0	0	0	1	430
Trade School ³	12	1,756	2	334	6	1,082	1	283	2	19	1	38
Vocational Education ⁴	25	6,988	8	3,282	5	556	2	68	9	2,994	1	88
Subtotal	40	11,262	10	3,616	13	3,726	3	351	11	3,013	3	556
Hospital ⁵	46	2,469	5	171	16	1,551	12	301	11	418	2	28
Business/Commerce ⁶	29	6,245	4	1,016	14	3,394	5	1,215	6	620	0	0
Other ⁷	146	4,982	41	949	49	2,094	30	1,091	13	523	13	325
Total	261	24,958	60	5,752	92	10,765	50	2,958	41	4,574	18	909

¹ Excludes all universities and colleges.

² An institution offering instruction in the technologies at a level above the skilled trades and below the professional level.

³ A school offering programs in one or more trades, such as auto mechanics, baking, barbering, truck driving, welding, etc.

⁴ A school exclusively or principally providing occupational education.

⁵ A hospital, sanatorium, or convalescent home offering instruction for medical and paramedical occupations.

⁶ A school offering courses for business occupations, such as accounting, data processing, and secretarial.

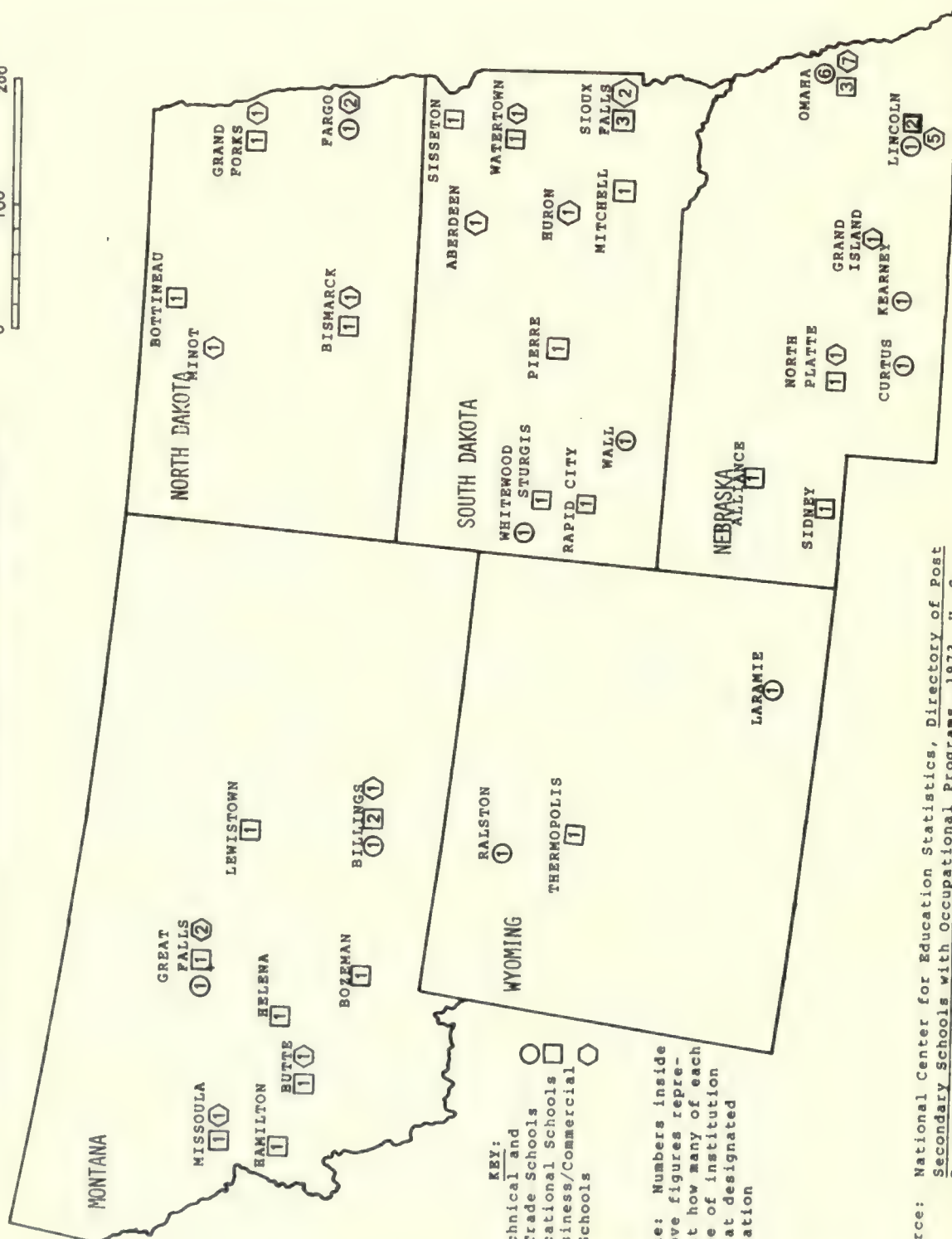
⁷ Includes cosmetology schools, flight schools, home study schools, fashion schools and institutes for the mentally retarded.

Source: Printout from National Center for Education Statistics, 1973 & 1974.

FIGURE VI-7

TECHNICAL, TRADE AND VOCATIONAL INSTITUTIONS-OLD WEST REGION 1973

THE OLD WEST REGION



KEY:
 Technical and Trade Schools
 Vocational Schools
 Business/Commercial Schools

Note: Numbers inside above figures represent how many of each type of institution is at designated location

Source: National Center for Education Statistics, Directory of Post Secondary Schools with Occupational Programs, 1973, U. S. Department of Health Education and Welfare, Washington, D.C. 1974.

Table VI-11
IN-PATIENT HEALTH CARE FACILITIES
OLD WEST REGION
1973

	<u>Region</u>	<u>Montana</u>	<u>Nebraska</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Wyoming</u>
<u>Type of Administration, Number</u>						
• Total Facilities	327	66	105	62	63	31
- Federal	29	6	5	5	10	3
- State	13	1	7	3	1	1
- Local	70	12	32	--	11	15
- Private	215	47	61	54	41	12
<u>Type of Facility, Number</u>						
• General Treatment	307	62	97	59	60	29
• Special Treatment	20	4	8	3	3	2
- Children	3	1	1	--	1	--
- Mental Retardation	3	1	1	1	--	--
- Psychiatric	10	1	4	1	2	2
- Respiratory	2	1	--	1	--	--
- Other	2	--	2	--	--	--
<u>Bed Capacity</u>						
• General Treatment						
- # of facilities with 100 or more beds	68	15	25	11	13	4
- Bed capacity	16,187	2,497	7,672	2,580	2,656	782
- # of facilities with less than 100 beds	241	49	72	48	47	25
- Bed capacity	8,796	1,621	2,392	1,935	1,758	1,090
- Total bed capacity of general treatment	24,893	4,118	10,064	4,515	4,414	1,872
• Special Treatment						
- # of facilities with one hundred beds or more	12	1	5	2	2	2
- Bed capacity	5,227	170	1,276	1,226	1,642	913
- # of facilities with less than 100 beds	6	1	3	1	1	--
- Bed capacity	266	35	121	36	36	--
- Total bed capacity of special treatment	5,493	205	1,397	1,262	1,716	913
• Total Bed Capacity of all Facilities	30,386	4,323	11,461	5,777	6,130	2,785

Source: American Hospital Association, Guide to the Health Care Field, Chicago, Illinois, 1974.

parts by nearly 4 to 1, while the ratio (private/public) in Nebraska was more than 2 to 1. Only Wyoming had more public than private health care facilities.

As would be expected, given the relative populations of the five States, Nebraska contained the largest number of hospitals (105); Montana (66), North Dakota (62) and South Dakota (63) followed Nebraska in terms of the total facilities. Wyoming, the State with the smallest population, also had the fewest number of facilities (31). It should also be noted that South Dakota had the greatest number of Federal facilities, due in large part to the fact that the U.S. Public Health Service (PHS) was operating 6 Indian hospitals within the State. The PHS operated 3 Indian facilities in Montana, 2 in North Dakota, 1 in Nebraska, and none in Wyoming in 1973.

The health care facilities operating in the Old West Region can be categorized as either 1) general treatment facilities (facilities providing a range of services to the general public) or 2) special treatment facilities (facilities providing specialized care for a particular group of patients or for patients with a specific disorder). As indicated by the figures shown in Table VI-11, the overwhelming majority (94 percent) of the Region's health care facilities operating in 1973 were categorized as general treatment facilities. Of the 20 special treatment facilities in operation that year, half were classified as psychiatric hospitals. Other special treatment facilities operating in the Old West Region during 1973 included: 3 children's hospitals, 3 mental retardation centers and two facilities for the treatment of tuberculosis and other respiratory ailments.

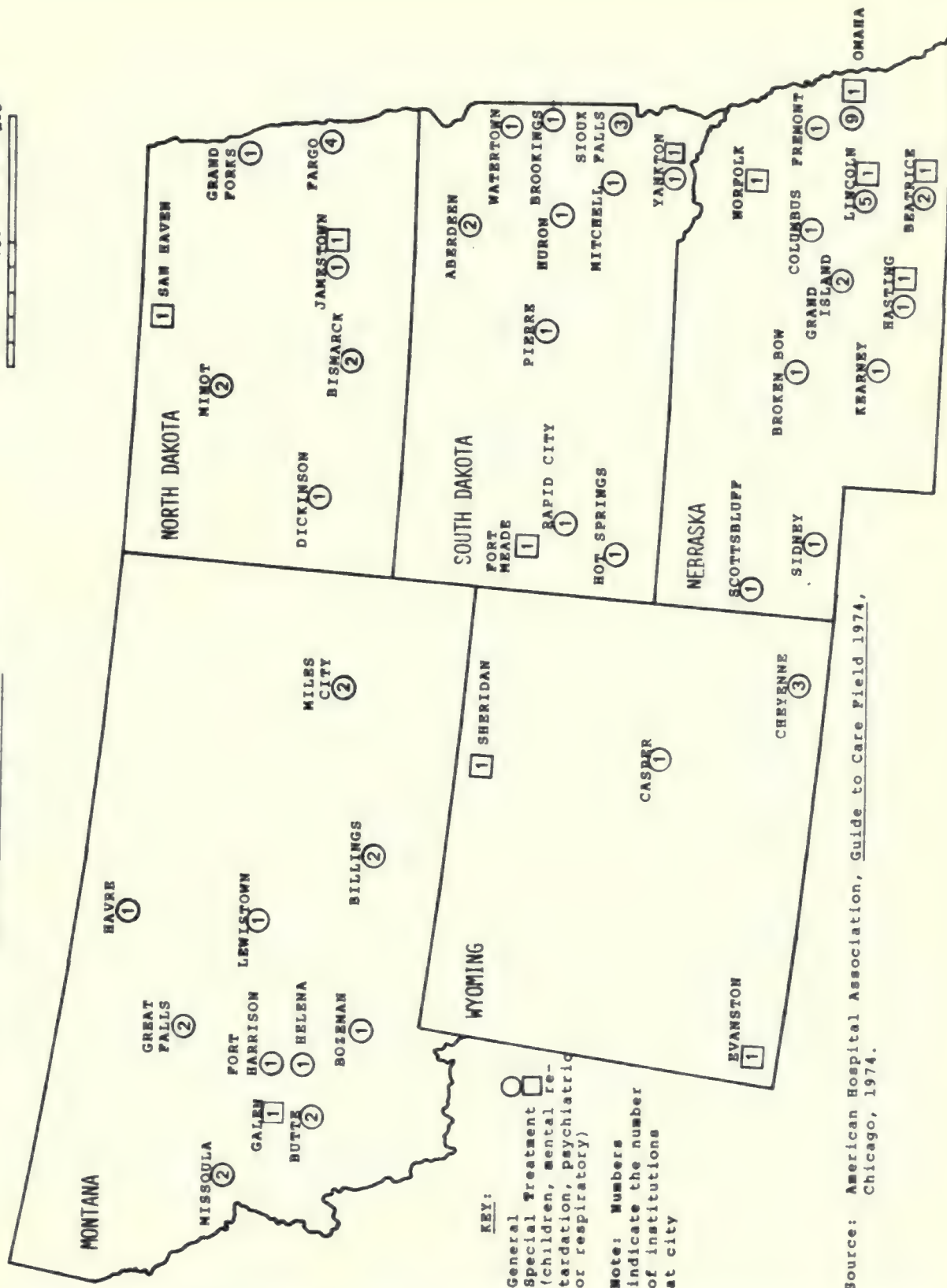
Most of the hospitals operating in the Region, as of 1973, were smaller community type hospitals designed to care for only a limited number of patients at any one time. This trend toward small community hospitals was reflected in the fact that 74 percent of the Region's hospitals had bed capacities of less than 100 beds in 1973 (see Table VI-11). Of the 80 facilities with bed capacities of 100 beds or more, 11 were Veterans hospitals and another 10 were special treatment facilities (primarily psychiatric institutions). Thus, there were only 59 hospital facilities in the entire five State area with bed capacities of over 100 that were available to the general public.

Figure VI-8 depicts the location of all those health care facilities with over 100 beds operating in the Region as of 1973. This map clearly indicates that these larger facilities are located in the Region's few urban centers. Further, it indicates a definite lack of major health care facilities in the western parts of North Dakota, South Dakota and Nebraska as well as the eastern portions of Montana and Wyoming.

FIGURE VI-8

HEALTH CARE INSTITUTIONS WITH 100 OR MORE BEDS
IN OLD WEST REGION - 1974

THE OLD WEST REGION
0 100 200



Source: American Hospital Association, Guide to Care Field 1974, Chicago, 1974.

Regional health care facilities have apparently experienced the same problem which has confronted medical institutions across the country for the past several years. As the costs of operations have continued to increase, health care facilities both within the Region and throughout the nation have been forced to cut back on services. Evidence of this economizing trend is clearly reflected by the fact that both the total number of hospital beds available for patient use and the ratio of hospital beds to population declined significantly between 1970 and 1973. As shown in Table VI-12, regional facilities experienced even a greater rate of decline in these two categories than did the nation as a whole. The Region experienced an 8.8 percent decrease in total beds and a 13 percent decrease in the ratio of beds to population as compared to a 7.5 percent decrease and an 11 percent decrease, respectively, for the nation. While this trend toward a further reduction of hospital services does not appear to pose an immediate problem for the Region (The American Hospital Association indicated that most regional facilities operated at far less than capacity in terms of average occupancy during 1973¹), it could become increasingly significant should this rate of decrease continue or should population increase significantly.

6.6 Public Pollution Abatement Facilities

The extent of public sewage facilities provided by the Old West Region and the nation is illustrated in Table VI-13. The percent of total population sewered (i.e., discharging waste into sewage collector lines) is slightly larger in the nation than in the Region. However, the effluent from a community may be collected and subsequently discharged into local waterways without treatment due to inadequate municipal facilities. Consequently, the Old West Region provides actual sewage treatment to a slightly larger percent of its population than does the nation. This condition can be partly attributed to public sewage service in Nebraska which treats approximately 10 percent more of the total State population than the national average.

Table VI-14 illustrates the amount of total sewered population receiving various types or degrees of sewage treatment in the Old West Region and the nation. Primary treatment is a physical process which removes approximately 90 percent of the solids and 35 percent of the biochemical oxygen demand (BOD) from sewage inflow. Secondary treatment is a process following primary treatment during which 70 to 95 percent of the BOD is biologically reduced. A slight reduction in solids is also achieved in secondary treatment. Tertiary treatment is a final "polishing" stage frequently used for drinking water. In this last treatment stage, solids are biochemically reduced by 98 percent. Intermediate treatment is an infrequently used process which achieves primary treatment and some additional chemical reduction of solids.

¹ The American Hospital Association's Guide to the Health Care Field, 1974 provided estimates of the average percent of occupancy by institution.

Table VI-12

HOSPITAL BEDS
OLD WEST REGION
1970, 1973

	<u>Region</u>	<u>Montana</u>	<u>Nebraska</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Wyoming</u>	<u>United States</u>
• Available Hospital Beds							
1970	33,066	4,641	12,861	5,932	6,558	3,074	1,649,663
1973	30,386	4,323	11,461	5,777	6,130	2,785	1,534,726
% change 1970-1973	-8.8	-7.4	-12.2	-2.7	-7.0	-10.4	-7.5
• Beds/1,000 Population							
1970	8.7	6.7	8.7	9.6	9.9	9.2	8.1
1973	7.7	5.9	7.5	9.1	9.0	7.9	7.3
% change 1970-1973	-13.0	-13.6	-16.0	-5.5	-10.0	-16.5	-11.0

Source: American Hospital Association, Hospital Statistics, Chicago, Illinois, 1974.

Table VI-13

PUBLIC SEWERAGE SERVICES
OLD WEST REGION AND NATION
1973

	Unsewered Population	Sewered Population	Percent of Total	Sewered Population		
			Population Sewered	Sewage Untreated	Sewage Treated	Percent Treated
Region	1,112,868	2,819,432	71.7	25,618	2,793,814	99.0
Montana	291,426	438,274	60.0	3,852	434,422	99.1
Nebraska	295,071	1,237,329	80.7	10,301	1,227,028	99.1
North Dakota	167,646	467,854	73.6	5,180	462,674	98.9
South Dakota	250,709	431,191	63.2	5,825	425,366	98.6
Wyoming	108,016	244,784	69.3	460	244,324	99.8
United States	47,200,000	162,800,000	77.5	3,900,000	158,900,000	97.6

Source: Municipal Waste Inventory, STORET computerized data base, EPA, 1975;
The Economics of Clean Water, EPA, Washington, D.C. 1973.

Table VI-14

DEGREE OF PUBLIC SEWAGE TREATMENT
OLD WEST REGION AND NATION
1973

(in persons served by sanitary sewerage facilities)

	<u>No Public Treatment</u>	<u>Primary Treatment</u>	<u>Intermediate Treatment</u>	<u>Secondary Treatment</u>	<u>Tertiary Treatment</u>
Region	25,618	595,787	6,380	103,297	88,350
Montana	3,852	221,301	4,400	205,521	3,200
Nebraska	10,301	283,716	1,980	939,182	2,150
North Dakota	5,180	3,245	0	418,429	41,000
South Dakota	5,825	47,525	0	335,841	42,000
Wyoming	460	40,000	0	204,324	0
United States	3,900,000	46,300,000	5,900,000	103,900,000	2,800,000

Source: See Table VI-13.

The Old West Region achieves generally superior public wastewater treatment to that of the nation as a whole. The Region provides both secondary and tertiary treatment to a greater percentage of its sewered population than does the nation. In addition, less than one percent of the regional sewered population receives no treatment whereas more than two percent of the nation's sewered population is without treatment.

6.7 Water and Power Generating Facilities

As discussed in Chapter IV, an extensive network of dams and reservoirs has been developed along the rivers of the Old West Region. The primary purpose of these water storage facilities is to regulate (to the degree possible) the flow of water downstream, thus assuring a more even year-round flow. Water stored behind these dams is used for a multiplicity of purposes such as for irrigation, domestic and municipal uses and industrial uses. While there are numerous off-channel uses, it was also indicated that there are a number of in-channel uses, including the generation of hydroelectric power.

In 1970, 260 million acre-feet of water (see Table IV-7) were used to generate 20.5 million megawatts of power (see Table VI-15). This represented 53.3 percent of all the power generated in the Region during that year. Montana, alone, utilized 80 million acre-feet of water to generate more than 7.5 million megawatts of power (87.2 percent of State total) during 1970. South Dakota was also another large producer of hydroelectric power, generating 6.5 million megawatts (89.6 percent of the State total) in 1970.

During the past few years, the amount and proportion of power generated by hydroelectric power plants in the Region has declined. Whereas in 1970 the Region's hydroelectric power facilities produced 20.5 million megawatts (see Table VI-15), representing 53.5 percent of all power generated in the Region, by 1973 hydroelectric output was down to 17.2 million megawatts and accounted for 40.5 percent of total regional output. On the other hand, in 1973 other power generating facilities, principally coal-fired plants, produced 25.3 million megawatts of power, accounting for 59.5 percent of the total regional power output. Coal-fired plants, alone, produced 19 million megawatts of power (44.8 percent of the regional total). Natural gas facilities followed coal-fired plants, producing 5.2 million megawatts, or 12.3 percent of the regional total. With only one nuclear power generating facility operating in 1973, nuclear power generation accounted for only 1.4 percent of the total regional output.

Aside from its exports of agricultural products and mineral ores, the Old West Region is an exporter of power. As of 1973, the Region was exporting over 20 percent (an estimated 9.1 million megawatts) of the power generated by its various power facilities. This figure represented an estimated 26 percent increase over the amount of power exported by the Region in 1970 and a 378 percent increase over the level of power exportation in 1960. Wyoming was the Region's largest exporter of power, exporting an estimated 5.6 million megawatts, as compared to North Dakota's 3.5 million megawatts and South Dakota's 1.8 million megawatts. While Montana did export some power (an estimated 142 thousand megawatts) in 1973, its level of exportation was

Table VI-15

NO 13102

Table VI-15 (Con't)

CAPACITY	MONTANA										NEBRASKA														
	1960			1970			1973			Average Annual % Growth Rate 1960-1970			1960			1970			1973			Average Annual % Growth Rate 1960-1970			
	Megawatts	Percent		Megawatts	Percent		Megawatts	Percent		1960-1970	1970-1973		Megawatts	Percent		Megawatts	Percent		Megawatts	Percent		1960-1970	1970-1973		
Total	1,353	100.0		1,832	100.0		1,881	100.0		+3.1	+0.9		1,224	100.0		2,017	100.0		3,033	100.0		+5.1	+14.6		
Hydro	1,235	91.3		1,512	82.5		1,512	80.4		+2.0	+0.0		240	19.6		238	11.8		236	7.8		-0.1	-0.3		
Other	118	8.7		320	17.5		369	19.6		+10.5	+4.9		984	80.4		1,779	88.2		2,797	92.2		+6.1	+16.3		
Coal							223	11.9											931	30.7					
Fuel Oil							96	5.1											209	6.9					
Gas							31	1.6											1,174	38.7					
Nuclear							0	0.0											457	15.1					
Wood, Waste and Other							19	1.0											26	0.9					
GENERATION																									
	Thousands of Megawatt Hours			Thousands of Megawatt Hours			Thousands of Megawatt Hours			Thousands of Megawatt Hours			Thousands of Megawatt Hours			Thousands of Megawatt Hours			Thousands of Megawatt Hours			Thousands of Megawatt Hours			
Total	5,992	100.0		10,026	100.0		9,136	100.0		+5.3	-3.0		4,352	100.0		7,971	100.0		9,649	100.0		+6.2	+6.6		
Hydro	5,801	96.8		8,744	87.2		7,520	82.3		+4.2	-4.9		959	22.0		1,371	17.2		1,371	14.2		+3.6	+0.0		
Other	191	3.2		1,282	12.8		1,616	17.7		+8.0	+8.0		3,393	78.0		6,601	82.8		8,278	85.8		+6.9	+7.8		
Coal	182	3.0		966	9.6		1,303	14.3		+18.2	+10.5		602	13.8		2,292	28.8		2,877	29.8		+16.3	+7.9		
Fuel Oil	0	0.0		14	0.1		70	0.8		--	+71.0		81	1.9		151	1.9		164	1.7		+6.4	+2.8		
Gas	9	0.2		228	2.3		195	2.1		+38.2	-5.0		2,662	61.2		4,157	52.2		4,637	48.1		+3.7	+3.7		
Nuclear	0	0.0		0	0.0		0	0.0		+0.0	+0.0		0	0.0		0	0.0		599	6.2		+0.0	--		
Wood, Waste and Other	0	0.0		74	0.7		48	0.5		--	-13.3		48	1.1		1	0.0		0	0.0		-32.1	-100.0		
Consumer Purchases	4,587			8,750			8,217			+6.7	-2.1		4,075			9,734			10,700			+9.1	+3.2		
Estimated Net Exports (+) or Imports (-)	+836			+374			+142			-7.7	-27.6		-136			-2,480			-1,871			+33.7	-8.9		
PROPORTION OF CAPACITY UTILIZED																									
	50.6			62.5			55.5						40.6			45.1			36.7						

Table VI-15 (Con't)
ELECTRIC POWER DATA FOR STATES
IN OLD WEST REGION
1960, 1970 and 1973

	NORTH DAKOTA						SOUTH DAKOTA					
	1960			1970			1960			1970		
	Megawatts	Percent	Thousands of Megawatt Hours	Megawatts	Percent	Thousands of Megawatt Hours	Megawatts	Percent	Thousands of Megawatt Hours	Megawatts	Percent	Thousands of Megawatt Hours
CAPACITY ¹	Average Annual % Growth Rate						Average Annual % Growth Rate					
	1960-1970		1970-1973		1960-1973		1960-1970		1970-1973		1960-1973	
Total	666	100.0	1,297	100.0	+7.3	-1.2	545	100.0	1,708	100.0	1,693	100.0
Hydro	400	60.1	400	30.8	+0.0	+0.0	324	59.4	1,334	81.0	1,384	81.7
Other	266	39.9	897	69.2	+13.5	-1.7	221	40.6	324	19.0	309	18.3
Coal			844	65.1							62	3.7
Fuel Oil			43	3.3							69	4.1
Gas			10	0.8							168	9.9
Nuclear			0	0.0							0	0.0
Wood, Waste and Other			0	0.0							10	0.6
GENERATION ¹	Thousands of Megawatt Hours						Thousands of Megawatt Hours					
	1960	1970	1973	1960	1970	1973	1960	1970	1973	1960	1970	1973
Total	1,780	100.0	7,776	100.0	+14.1	+5.3	1,700	100.0	7,306	100.0	5,538	100.0
Hydro	1,060	59.6	2,382	30.6	+10.3	-5.4	1,136	66.8	6,543	89.6	4,795	86.6
Other ²	720	40.4	5,394	69.4	+18.3	+11.9	564	33.2	763	10.4	743	13.4
Coal	708	39.8	5,370	69.1	+18.4	+12.1	260	15.3	335	4.6	391	7.1
Fuel Oil	8	0.4	17	0.1	+5.0	-18.6	22	1.3	137	1.9	81	1.5
Gas	4	0.2	0	0.0	+16.2	-1.9	282	16.6	291	4.0	272	4.9
Nuclear	0	0.0	0	0.0	+0.0	+0.0	0	0.0	0	0.0	0	0.0
Wood, Waste and Other	0	0.0	0	0.0	--	-100.0	0	0.0	0	0.0	0	0.0
Consumer Purchases	1,153	2,815	3,656		+9.3	+9.1	1,514		2,803		3,295	
Estimated Net Exports (+) or Imports (-) ³	+458	+3249	+3459		+21.6	+2.1	+24		+3,845		+1,772	
Percent of Total	30.5	56.6	68.4				35.6		48.8		37.3	
PROPORTION OF CAPACITY UTILIZED												

Table VI-15 (Con't)
ELECTRIC POWER DATA FOR STATES
IN OLD WEST REGION
1960, 1970 and 1973

W Y O M I N G								
	1960		1970		1973		Average Annual % Growth Rate	
	Megawatts	Percent	Megawatts	Percent	Megawatts	Percent	1960-1970	1970-1973
<u>CAPACITY</u> ¹								
Total	382	100.0	1,135	100.0	1,835	100.0	+11.5	+17.4
Hydro	189	49.5	223	19.6	220	12.0	+1.7	-0.5
Other	193	50.5	912	80.4	1,615	88.0	+16.8	+21.0
Coal					1,564	85.2		
Fuel Oil					33	1.8		
Gas					18	1.0		
Nuclear					0	0.0		
Wood, Waste and Other					0	0.0		
<u>GENERATION</u> ¹								
	Thousands of Megawatt Hours		Thousands of Megawatt Hours		Thousands of Megawatt Hours			
Total	1,588	100.0	6,485	100.0	10,395	100.0	+15.1	+17.0
Hydro	609	38.4	1,006	15.5	1,140	11.0	+5.1	+4.3
Other ²	979	61.6	5,479	84.5	9,255	89.0	+18.8	+19.1
Coal	937	59.0	5,424	83.6	9,101	87.6	+19.2	+18.8
Fuel Oil	5	0.3	13	0.2	63	0.6	+10.0	+69.2
Gas	37	2.3	42	0.0	91	0.9	+1.3	+29.4
Nuclear	0	0.0	0	0.0	0	0.0	+0.0	+0.0
Wood, Waste and Other	0	0.0	0		0	0.0	+0.0	+0.0
Consumer Purchases	719		3,704		3,927		+17.8	+2.0
Estimated Net Exports (+) or Imports (-) ³	+718		+2,197		+5,584		+11.8	+36.5
<u>PROPORTION OF CAPACITY UTILIZED</u>								
	Percent of Total		Percent of Total		Percent of Total			
	47.5		65.2		64.7			

¹ Does not include power capacity or generation of industrial, mine and railway electric power plants.

² Figures may not add up to total due to rounding.

³ Takes into account power generation loss due to transmission. National averages used in calculation: 1960 at 9.5 percent, 1970 at 9.0 percent, and 1973 at 8.5 percent.

Source: Edison Electric Institute, *Statistical Yearbook of the Electric Utility Industry*, Edison Electric Institute, N.Y., N.Y., (Annual Publication); and Unpublished Federal Power Commission data.

below its 1960 level (836 thousand megawatts). Nebraska was the only State in the Region which did not export power in 1973; actually importing an estimated 1.9 million megawatts of power. However, Nebraska's 1973 level of power imports was 32.5 percent less than it had been in 1970.

The regional outlook in terms of actual and potential power availability appears to be excellent.

CHAPTER VII

OTHER CONDITIONS:

HOUSING AND MEDICAL PROFESSIONALS

7.1 Summary

This chapter reviews certain other regional conditions not covered elsewhere in this part of the study, namely: housing conditions and the availability of medical professionals.

The housing data indicate that housing conditions in the overall Region are relatively similar to those in the nation; however, in 1970, on a percentage basis there were: 1) relatively more owner occupied housing units in all States of the Region, 2) substantially more occupied mobile units in the Region (especially in Wyoming and Montana), 3) slightly less overcrowding in the Region, 4) slightly more telephones in the occupied units of the Region, and 5) slightly fewer occupied units in the Region with all plumbing facilities. While there appeared to be proportionately more vacant dwelling units in the Region in comparison with the nation in 1970, this variation is slight when only those units are considered which contain all plumbing facilities. In fact, the data show relatively low absolute numbers of adequate vacant dwelling units in most counties of the Region, and even these may be in an unsatisfactory location to support most economic development activities. The conclusion reached is that the existing regional housing base appears to be quite limited to support potential mining or other developments in the Region.

Concerning medical professionals, the overwhelming problem appears to be the lack of physicians in the Region. In 1972 there were on average 110 physicians per 100,000 population in the Region, compared to a rate of 157 in the nation. The nation had about 43 percent more physicians available than the Region to serve an equivalent population and this relationship appears to be stable over time. This problem was prevalent in all States, but South Dakota showed the greatest disparity with only 90 physicians per 100,000 persons in 1972.

7.2 Housing Conditions and Vacancies

A review of regional and national housing conditions is provided in Table VII-1. Data from 1960 and 1970 on selected housing indicators are provided for the Old West Region, each State and the nation.

The total number of occupied housing units in the Region increased by about 75 thousand, or almost 7 percent, between 1960 and 1970. This was much lower than the national growth rate of occupied housing units of almost 20 percent during this same period. However, while the nation's household population increased by over 13 percent between 1960 and 1970, the increase for the Region amounted to less than one percent. On the other hand, population per household was similar for the Region and nation in 1960 (3.3 person per household) and 1970 (3.1 persons per household).

Table VII-1
HOUSING INDICATORS
OLD WEST REGION AND NATION
1960 AND 1970

Area	Population in Household		Total Occupied Units		Population Per Household		Owner Occupied Unit (percent)		Occupied ¹ Mobile Homes or Trailers (percent)		1.01 or More Persons Per Room (percent)		Telephone Available (percent)		With All Plumbing Facilities (percent)		All Housing Units ²		Housing Vacancies (percent)		Vacancies with All Plumbing Facilities (percent)	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
Region	3,627,150	3,657,031	1,103,958	1,178,045	3.29	3.10	65.40	67.12	2.93	4.79	12.47	7.97	80.58	89.25	90.88		1,189,653	1,236,589	7.28	8.58	64.51	
Montana	557,358	674,189	202,240	217,304	3.25	3.10	63.98	65.70	3.50	6.93	14.86	9.56	78.36	85.89	90.95		220,544	240,304	8.30	9.57	57.74	
Nebraska	1,371,828	1,431,184	433,448	473,721	3.16	3.02	64.80	66.41	1.64	2.72	9.21	6.19	84.64	91.69	93.88		464,687	511,891	6.72	7.46	73.18	
North Dakota	614,838	590,508	173,362	181,613	3.54	3.25	68.39	68.38	2.89	4.88	15.38	9.11	77.59	90.47	86.20		188,097	200,344	7.83	9.34	53.28	
South Dakota	665,134	637,741	194,801	208,807	3.39	3.19	67.17	69.56	3.56	5.31	13.04	8.98	77.44	87.52	86.44		209,225	221,720	6.88	9.43	52.39	
Wyoming	522,932	323,409	99,187	104,600	3.26	3.09	62.18	66.39	6.22	8.63	15.61	8.77	77.77	86.42	94.12		107,100	114,330	7.39	8.51	75.23	
United States	174,073,322	197,395,913	53,023,875	63,449,747	3.29	3.11	61.85	62.86	1.45	2.92	11.53	8.21	78.49	86.96	93.09		56,583,892	67,656,566	6.29	6.22	78.62	

¹ Percentage of all occupied housing units. Mobile homes or trailers are not enumerated if vacant, used only for business, or used only for vacations.

² All year round housing units, excludes vacant seasonal and vacant migratory units.

³ Includes only year round vacant, i.e., vacant for sale; for rent; rented or sold; awaiting occupancy; held for occasional use, and other vacant.

Sources: 1) Bureau of the Census, U.S. Census of Housing: 1970, Vol. 1, Housing Characteristics for States, Cities, and Counties, Part 1, Part 2, Part 3, Part 4, Part 5, Part 6, Part 7, Part 8, U.S. Government Printing Office, Washington, D.C.

2) Bureau of the Census, U.S. Census of Housing: 1960, Vol. 1, States and Small Areas, Part 1, Part 5, Part 6, Part 7, Part 8, U.S. Government Printing Office, Washington, D.C.

In 1970, the population per household among the States of the Region ranged narrowly between about 3.0 (Nebraska) and 3.25 (North Dakota).

The proportion of owner occupied housing units was higher in the Region, and all States in the Region, than in the nation in both 1960 and 1970. For example, in 1970 about 67.1 percent of the Region's housing units were owner occupied, compared with about 62.9 percent for the nation. This approximate 7 percent greater proportion of owner occupied units reflects the more rural character of the Region where comparatively greater numbers of ranch and farm families live in their own dwelling.

Table VII-1 underscores the importance of mobile homes and trailers in providing dwelling space for the Region's inhabitants. Except for the State of Nebraska, the proportion of occupied mobile homes or trailers was substantially higher in the Region than in the nation in both 1960 and 1970. For example, in 1970 occupied mobile homes or trailers accounted for about 4.8 percent (up from 2.9 percent in 1960) of all occupied housing units in the Region, whereas in the nation such mobile units accounted for only 2.9 percent of occupied housing units. Within the Region, Wyoming with 8.6 percent and Montana with 6.9 percent had the highest proportion of mobile units among occupied housing units in 1970. Such mobile units appear to be particularly prevalent in mining and construction areas where there are large swings in population from year-to-year, and where there is a limited supply of non-mobile vacant units. Wyoming and Montana lead the States of the Region in mining and related construction activity, and as additional mining activities proceed even greater reliance may be placed upon mobile housing units in the Region.

The proportion of all occupied housing units with an average of 1.01 or more persons per room is an indicator of overcrowding. Table VII-1 shows that the Region has moved in parallel with the nation, but that while overcrowding appears slightly higher in the Region in comparison with the nation in 1960, this was reversed by a slight margin in 1970. In 1960, the Region had an estimated 12.5 percent of its occupied housing units with an average of 1.01 or more persons per room versus 11.5 percent for the nation. In 1970, this indicator was estimated at 8.0 percent for the Region versus 8.2 percent for the nation. In both 1960 and 1970 Nebraska led all States with the lowest level of overcrowding as estimated by this indicator. However, all States showed substantial declines in overcrowding between 1960 and 1970. Wyoming led the other States by achieving the greatest decline.

The availability of telephones and plumbing facilities in occupied units provides some measure of housing quality and economic well-being. In both 1960 and 1970 (see Table VII-1) the Old West Region had a higher percentage of telephones in occupied housing units in comparison with the nation (80.6 percent versus 78.5 percent, respectively, in 1960, and 89.2 percent versus 86.9 percent, respectively, in 1970). Only Wyoming and

Montana were slightly below the national proportion, probably due to the remoteness of many areas in these States and their higher percentages of mobile housing units. In 1970, about 90.9 percent of all occupied housing units in the Region, contained all plumbing facilities, compared with 93.1 percent nationwide. By 1970 the Region almost achieved parity with the nation with respect to this statistic; and both Wyoming and Nebraska were above the national average in the availability of occupied units with all plumbing facilities.

The Region appears to have a higher rate of vacant housing units when compared to national data. In 1960 and 1970 (see Table VII-1) the Region's housing vacancy rate was 7.3 percent and 8.6 percent, respectively, as opposed to nationwide levels of 6.3 percent and 6.2 percent, respectively. However, the quality of these vacant units in the Region appears to be substantially lower in comparison with the nation when this assessment is based on vacancies with all plumbing facilities. The proportion of vacant housing with all plumbing facilities was substantially lower in the Region in comparison with the nation in 1970. Consequently, the effective vacancy rate (i.e., proportion of all housing units that are vacant and contain all plumbing facilities) was relatively similar in the Region and the nation in 1970 (5.5 percent in the Region and 4.9 percent in the nation). Appendix C provides additional 1970 data on county and sub-State area housing levels, housing vacancies, and vacancies with all plumbing facilities. These data reflect the relatively low absolute number of vacant dwelling units available with all plumbing facilities in most of the counties in the Region. Even these limited number of adequate dwelling units may be in an unsatisfactory location to support economic development. Many of these counties are large in land area and travel distances between potential jobs and adequate housing in many cases would be very great. The existing housing base to support potential mining or other developments in the Region appears to be quite limited.

7.3 Medical Professionals

The availability of medical professionals provides an important indicator of health services being provided in the Region. Table VII-2 presents data for the Region and nation on the availability of such health professionals.

In 1972 the number of active physicians in the Region numbered an estimated 4,288. Of these, about 10.4 percent were employed by the Federal Government, 82.6 percent were non-Federal doctors of medicine providing patient care, and the remaining (7.0 percent) were non-Federal teachers, administrators, or researchers. This was similar to the national proportions in 1972 except that there was a somewhat greater proportion of Federal physicians in the Region (10.4 percent versus 7.6 percent for the nation) and a lower percentage of non-Federal physicians involved in activities other than patient care (7.0 percent versus 11.1 percent for the nation). The most important statistic revealed in Table VII-2 is the overwhelmingly low number of physicians in the Region in relation to the population size.

Table VII-2
MEDICAL PROFESSIONALS
OLD WEST REGION.
1969-1972

Year, State	Active Physicians ¹					Registered Nurses ⁵		Active Civilian Dentists	
	Total	Rate ²	Non-Federal		Federal ⁴	Total	Rate ²	Total	Rate ²
			Patient Care	Other ³ Activities					
1969									
Region	3,921	103.6	3,310	204	407	NA	NA	1,702	45.0
Montana	720	103.7	624	20	76	NA	NA	320	46.1
Nebraska	1,674	113.6	1,413	128	133	NA	NA	778	52.8
North Dakota	617	99.4	517	27	73	NA	NA	227	36.7
South Dakota	595	89.1	483	18	94	NA	NA	242	36.2
Wyoming	315	95.7	273	11	31	NA	NA	135	41.0
United States	297,122	147.6	245,368	25,763	25,991	NA	NA	92,984	46.2
1970									
Region	4,024	106.1	3,385	224	415	NA	NA	1,709	45.0
Montana	744	107.1	657	22	65	NA	NA	314	45.2
Nebraska	1,725	116.3	1,439	142	144	NA	NA	781	52.7
North Dakota	622	100.7	512	30	80	NA	NA	228	36.9
South Dakota	598	89.9	485	18	95	NA	NA	241	36.2
Wyoming	335	101.5	292	12	31	NA	NA	145	43.7
United States	305,306	150.2	252,778	26,434	26,094	NA	NA	95,422	47.0
1971									
Region	4,144	107.3	3,483	249	412	6,934	179.5	1,764	45.7
Montana	778	109.6	686	27	65	1,289	181.5	316	44.5
Nebraska	1,780	118.0	1,491	151	138	2,763	183.2	822	54.5
North Dakota	635	101.0	521	36	78	1,110	176.5	236	37.5
South Dakota	598	88.6	484	20	94	1,171	173.5	235	34.7
Wyoming	353	103.8	301	15	37	601	176.8	156	45.9
United States	316,545	153.5	261,335	29,046	26,164	345,953	167.8	97,210	47.1
1972									
Region	4,288	109.8	3,543	300	445	7,203	184.5	1,755	45.0
Montana	797	111.3	694	32	71	1,355	189.2	315	44.0
Nebraska	1,864	122.0	1,532	191	141	2,861	187.2	822	53.8
North Dakota	648	102.2	524	37	87	1,206	190.2	233	36.8
South Dakota	614	90.3	482	27	105	1,185	174.3	229	33.7
Wyoming	365	105.5	311	13	41	596	172.3	156	45.1
United States	327,747	157.4	266,587	36,228	24,932	359,843	172.8	97,970	47.0

- ¹ Excludes doctors of Osteopathy.
² Per 100,000 resident population; based on Bureau of the Census population estimates.
³ Includes teachers, administrators, researchers, and others.
⁴ Includes physician overseas.
⁵ Registered nurses in hospitals only.

Source: 1) American Medical Association, Center for Health Services Research and Development, Distribution of Physicians in the U.S., Regional, state, county and metropolitan areas, published annually, G.A. Roback, Chicago.
2) U.S. Department of Health, Education and Welfare, Public Health Service, Health Resources Administration, National Center for Health Statistics, Health Resource Statistics, published annually, U.S. Government Printing Office, Washington, D.C.

In all years (1969-1972) shown, the number of physicians per 100,000 population is much lower in the Region as compared with the nation. For example, in 1972 the rate was about 110 for the Region as opposed to 157 for the nation. The nation had about 43 percent more physicians available than the Region to serve an equivalent population, and this relationship was stable between 1969 and 1972. This problem of a lack of physicians in relation to population size is apparent in all States in the Old West Region. Nebraska has the highest rate of physicians per 100,000 population, but in 1972 the rate was only 122. The problem of physician availability is most acute in South Dakota. In 1972 the rate was only 90 physicians per 100,000 persons. The national rate was 75 percent higher than that of South Dakota. The lack of physicians in the Region is partially traceable to the rural character of the Region, the low incomes generated in many areas and the limited number of large hospitals (see Chapter VI) that attract a variety of medical specialists. Among the non-Federal physicians, in 1972 about 32 percent were general practitioners and the remaining were specialists in the Region as opposed to about 17 percent general practitioners nationwide.

With regard to registered nurses and civilian dentists, the Region performs much better. In 1971 and 1972 the number of registered nurses in hospitals per 100,000 population was higher in the Region (by about 7 percent) and all States (except Wyoming in 1972) in comparison with the nation. Between 1969 and 1972 the number of civilian dentists per 100,000 population averaged about 45 for the Region versus about 47 (or only about 4 percent higher) for the nation. Only North Dakota and South Dakota appear substantially lower than the national rate with about 37 and 34 dentists per 100,000 population, respectively, in 1972.

CHAPTER VIII

INDUSTRIAL STRUCTURE

8.1 Regional Summary

Tables VIII-1 through VIII-4 present real earnings (constant 1967 dollars) and employment data for the Old West Region and the nation for selected years from 1950 through 1974.¹ As shown in Table VIII-1, total earnings (1967 dollars) have grown from \$5.9 billion in 1950 to \$11.3 billion in 1974, or at a compounded annual growth rate of 2.7 percent. Real earnings in 1973 were \$12.7 billion, \$1.4 billion greater than in 1974. This resulted primarily from declines in agricultural earnings due to adverse weather conditions and lower agricultural commodity prices.

As Table VIII-2 indicates, earnings growth was not evenly distributed during the 24-year period. For instance, the Old West Region's economy grew fastest during the 1970-1974 period, and grew faster during the 1960's than it did during the 1950's. Earnings growth during the 1950's in the Region was well below the national rate, whereas in the early 1970's earnings growth was substantially higher in the Region in comparison with the nation. The nation's annual real earnings growth rate was 3.7 percent from 1950 to 1959, in contrast to only 0.4 percent for the Region. The slowdown in the Region's economy during the 1950's can be traced largely to a substantial decline in agricultural earnings and employment. On the other hand, the Region's annual real earnings growth rate between 1970 and 1974 was 5.5 percent compared to the nation's 2.9 percent. This spurt in regional growth is largely linked to increased agricultural and mining revenues.

Table VIII-1 also presents the sectorial distribution of real earnings for the Region and the nation. With the exception of agriculture and manufacturing, the sectorial distribution in the Region is roughly comparable to the real earnings pattern in the nation. Over the years, in relative terms, the Region's agriculture contributed three to four or more times as much as did the agriculture sector in the nation to earnings. On the other hand, the manufacturing sector in the nation contributed two to three times as much as did manufacturing in the Region.

During the period 1950 to 1974 the driving forces of growth in the Region's economy have been the manufacturing, mining, and Federal Government sectors in the sense that these sectors have been most responsible for stimulating growth in the transportation, communications and utilities (TCU); contract construction; trade; financial, insurance and real estate (FIRE); services; and State and local government sectors. While agriculture has always been an important factor in the regional economy, it has not been a significant catalyst for growth over the 25-year period.²

¹ The 1950 through 1972 data were compiled from a special computer run by the Bureau of Economic Analysis, Regional Economics Division. Some of these data (1968, 1970 and 1972) were used for disaggregations at the sub-State level (see Appendix D). Data for 1973 and 1974 were obtained from Bureau of Economic Analysis, Survey of Current Business, U.S. Department of Commerce, August, 1975.

² Only over the past several years (1973, 1974) has agriculture, because of substantially increased earnings, appeared to "drive" some of the other sectors.

Table VIII-1

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
OLD WEST REGION
SELECTED YEARS 1950-1974
(millions of constant 1967 dollars)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport, Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	2,078.6	132.7	350.7	429.4	519.8	1,106.5	171.9	478.2	317.1	338.2	5,923.2
1953	1,632.4	165.0	455.9	664.1	592.8	1,233.6	275.7	691.8	463.1	562.9	6,137.4
1957	1,518.0	158.5	577.4	745.3	610.3	1,324.9	303.9	819.0	571.6	661.1	7,490.5
1960	1,362.5	176.4	520.0	961.5	686.5	1,527.7	390.2	1,105.0	722.2	959.6	8,411.7
1963	1,501.2	191.7	579.7	1,013.4	733.6	1,502.6	396.9	1,208.7	764.6	1,105.5	9,103.8
1972	1,980.8	195.2	691.0	1,112.2	827.5	1,703.5	448.2	1,305.3	869.5	1,209.1	10,342.1
1973	3,912.2	225.8	755.5	1,176.8	887.0	1,835.3	457.3	1,306.7	864.7	1,263.5	12,716.3
1974	2,139.1	263.4	784.5	1,183.4	879.7	1,876.7	460.6	1,305.7	849.3	1,235.1	11,277.3

SECTOR EARNINGS AS A PERCENT OF TOTAL EARNINGS											
OLD WEST REGION AND NATION											
1950	35.1	2.2	5.9	7.3	8.8	18.7	2.9	8.1	5.4	5.7	100.0
1953	16.8	2.7	7.4	10.8	9.7	20.1	4.5	11.3	7.6	9.2	100.0
1957	22.9	2.1	7.7	10.0	8.2	17.7	4.1	10.9	7.6	8.8	100.0
1960	16.2	2.1	6.2	11.4	8.2	18.2	4.6	13.1	8.6	11.4	100.0
1972	16.6	2.1	6.4	11.1	8.1	17.6	4.4	13.3	8.4	12.1	100.0
1973	19.1	1.9	6.7	10.8	8.0	16.5	4.3	12.6	8.4	11.7	100.0
1974	30.3	1.8	6.0	9.3	7.0	14.4	3.6	10.3	7.0	9.9	100.0
	21.6	2.3	7.0	10.5	7.8	16.6	4.1	11.6	7.5	11.0	100.0

United States											
1950	9.1	2.0	6.0	28.9	8.2	18.9	4.2	11.2	5.9	5.6	100.0
1953	4.8	1.4	6.1	30.1	7.7	17.9	5.1	12.7	6.8	7.4	100.0
1957	3.5	1.0	6.0	29.4	6.9	16.4	5.2	14.6	7.4	9.7	100.0
1960	3.6	1.0	6.2	26.3	6.9	17.1	5.1	15.7	7.2	10.9	100.0
1972	3.8	1.0	6.4	25.2	7.1	17.0	5.3	15.7	6.9	11.6	100.0
1973	5.1	1.0	6.3	26.7	7.2	16.1	5.1	15.0	6.5	10.9	100.0
1974	4.0	1.1	6.3	26.8	7.2	16.5	5.2	15.3	5.5	11.1	100.0

¹ Defined as wages and salaries, plus other labor and proprietor's income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add due to rounding.

Source: Special data compilations from the Bureau of Economic Analysis, Regional Economics Division, U.S. Department of Commerce, April 27, 1975; and Bureau of Economic Analysis, Survey of Current Business, U.S. Department of Commerce, August, 1975.

Table VIII-2

REAL EARNINGS
ANNUAL GROWTH RATES BY SECTOR
OLD WEST REGION AND NATION
SELECTED PERIODS 1950-1974
(in percent)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total
<u>Old West Region</u>											
1950-1959	-7.5	2.4	3.0	5.0	1.5	1.2	5.4	4.2	6.5	5.8	0.4
1959-1970	3.5	1.4	2.2	3.9	2.0	2.4	3.4	5.2	4.7	6.3	3.7
1970-1974	12.8	8.3	7.8	3.9	4.6	4.0	3.8	1.9	2.7	2.8	5.5
1950-1974	0.7	2.9	3.4	4.3	2.2	2.2	4.2	4.3	4.2	5.5	2.7
<u>United States</u>											
1950-1959	-3.8	0.0	4.0	4.1	3.0	3.0	5.8	5.1	5.4	6.9	3.7
1959-1970	1.2	0.8	4.2	3.5	3.5	3.5	4.3	5.9	4.8	7.7	4.3
1970-1974	6.4	4.9	3.5	1.9	3.3	2.8	3.3	3.3	0.3	4.4	2.9
1950-1974	0.3	1.2	4.0	3.6	3.3	3.2	4.7	5.2	4.3	6.8	3.8

Source: From Table VIII-1.

Table VIII-3
EMPLOYMENT BY
INDUSTRIAL SECTOR
OLD WEST REGION
SELECTED YEARS 1950-1974
(in thousands)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	432.0	26.3	65.7	113.5	119.7	254.9	38.7	144.0	56.3	114.0	1,371.6
1959	327.6	27.8	78.6	136.2	110.9	275.8	51.1	173.0	73.2	156.5	1,415.7
1962	311.3	25.3	85.7	142.8	105.8	284.4	55.5	191.8	84.5	170.6	1,457.7
1968	238.9	26.7	70.5	161.5	101.8	326.0	58.1	253.0	98.6	228.5	1,568.6
1970	233.0	28.0	73.3	167.3	104.4	346.4	61.9	269.8	96.8	249.5	1,630.4
1972	230.5	28.2	82.1	173.4	104.9	360.2	66.0	292.1	98.9	254.2	1,690.5
1973	239.0	29.4	90.3	183.8	109.9	382.3	72.1	299.3	99.7	260.0	1,765.8
1974	233.0	33.8	95.1	186.9	114.2	398.6	76.2	311.3	101.5	266.7	1,817.3
SECTOR EMPLOYMENT AS A PERCENT OF TOTAL EMPLOYMENT OLD WEST REGION AND NATION											
Old West Region											
1950	31.9	1.9	4.8	8.3	8.7	18.6	2.8	10.5	4.1	8.3	100.0
1959	23.1	2.0	5.6	9.6	7.8	19.5	3.6	12.6	5.2	11.1	100.0
1962	21.4	1.7	5.9	9.8	7.3	19.5	3.8	13.2	5.8	11.7	100.0
1968	15.2	1.7	4.5	10.3	6.5	20.8	3.7	16.5	6.3	14.6	100.0
1970	14.3	1.7	4.5	10.3	6.4	21.2	3.8	16.6	5.9	15.3	100.0
1972	13.6	1.7	4.9	10.3	6.2	21.3	3.9	17.3	5.9	15.0	100.0
1973	13.5	1.7	5.1	10.4	6.2	21.7	4.1	17.0	5.7	14.7	100.0
1974	12.6	1.9	5.2	10.3	6.3	21.9	4.2	17.1	5.6	14.7	100.0
United States											
1950	13.7	1.7	4.5	29.1	7.7	17.9	3.7	10.3	3.7	7.8	100.0
1959	9.5	1.2	5.0	28.3	6.8	18.9	4.4	12.1	3.8	9.9	100.0
1962	8.2	1.1	4.8	27.8	6.5	19.1	4.6	13.3	3.9	10.8	100.0
1968	5.3	0.8	4.6	27.6	6.0	19.6	4.7	14.8	3.8	12.7	100.0
1970	4.7	0.8	4.8	26.0	6.1	20.2	5.0	15.6	3.7	13.2	100.0
1972	4.5	0.8	5.0	24.7	5.9	20.7	5.1	16.1	3.5	13.8	100.0
1973	4.3	0.8	5.0	25.0	5.8	20.8	5.1	16.2	3.3	13.8	100.0
1974	4.3	0.8	4.9	24.5	5.7	20.8	5.1	16.5	3.3	14.1	100.0

1 Includes military.

2 May not add due to rounding.

Source: Region data derived from Tables VIII-6, VIII-15, VIII-28, VIII-39, and VIII-48; U.S. data were obtained from special data compilation by the Bureau of Economic Analysis, U.S. Department of Commerce and the Department of Labor, Employment and Earnings, Vol. 21, No. 12, June, 1975.

Table VIII-4

EMPLOYMENT
ANNUAL GROWTH RATES BY SECTOR
OLD WEST REGION AND NATION
SELECTED PERIODS 1950-1974
(in percent)

	<u>Agriculture</u>	<u>Mining</u>	<u>Contract Construction</u>	<u>Manufacturing</u>	<u>Transport. Comm. & Utilities</u>	<u>Wholesale & Retail Trade</u>	<u>Finance Insurance & Real Estate</u>	<u>Services</u>	<u>Federal Gov't</u>	<u>State & Local Gov't</u>	<u>Total</u>
<u>Old West Region</u>											
1950-1959	-3.2	0.6	2.0	2.1	-0.4	0.9	3.1	2.4	2.9	3.6	0.4
1959-1970	-3.1	0.1	0.6	1.9	-0.6	2.1	1.8	3.9	2.6	4.3	1.3
1970-1974	0.0	4.6	6.7	2.8	2.3	3.6	5.3	3.6	1.2	1.7	2.7
1950-1974	-2.6	1.1	1.6	2.1	-0.2	1.9	2.9	3.3	2.5	3.6	1.2
<u>United States</u>											
1950-1959	-2.8	-2.3	2.7	1.0	-0.1	1.9	3.4	3.2	1.6	4.0	1.3
1959-1970	-4.2	-1.5	1.6	1.4	1.1	2.8	3.3	4.5	1.9	4.8	2.1
1970-1974	0.2	1.9	3.0	0.9	1.1	3.1	3.1	3.8	-0.1	4.1	2.4
1950-1974	-3.0	-1.2	2.3	1.1	0.6	2.5	3.3	3.9	1.5	4.4	1.9

Source: From Table VIII-3.

Table VIII-3 presents employment data by sector and Table VIII-4 presents the annual growth rates of employment by sector for the Region and nation.³ Employment increased from 1.4 million in 1950 to 1.8 million in 1974, a compounded annual growth of 1.2 percent. This growth was 37 percent below growth of employment in the nation (1.9 percent annually). As Table VIII-4 indicates, Region employment grew at an annual rate of 0.4 percent from 1950 to 1959, 1.3 percent from 1959 to 1970, and 2.7 percent from 1970 to 1974. The extraordinary growth in 1970-1974 may be attributed to marked increases in employment in manufacturing, mining, construction, and TCU. The growth of these sectors, along with increased agricultural earnings, provided stimulus for additional growth in the trade, FIRE, services and State and local government sectors.

The distribution of employment between the five States in the Old West Region in 1974 was as follows: Montana, 17 percent; Nebraska, 40 percent; North Dakota, 16 percent; South Dakota, 17 percent; and Wyoming, 10 percent. A brief summary of each sector follows.

8.1.1 Agriculture

As shown in Tables VIII-1 and VIII-2, agriculture earnings in the Region have experienced substantial year-to-year variability. For instance, real earnings (1967 dollars) were \$2.1 billion in 1950, then fell to \$1.0 billion in 1959. In 1962, real earnings were \$1.7 billion, declining to \$1.4 billion in 1968. Agriculture real earnings were at an all time high of \$3.9 billion in 1973, but fell to \$2.4 billion in 1974. These wide fluctuations reflect, primarily, weather conditions; governmental agricultural programs and policies; and in recent years world food shortages and the resulting impact on agricultural commodity prices.

Agricultural employment in the Region declined from 438,000 in 1950 to 233,000 in 1974, a decline of almost 50 percent, or an annual rate of 2.6 percent (see Tables VIII-3 and VIII-4). This is slightly less than the 3.0 percent annual rate of decline of agricultural employment in the nation. The shift of employment out of agriculture occurred primarily during the 1950's and 1960's. Since 1970, agricultural employment in the Region has begun to stabilize. Agriculture's share of total employment in the Region was 12.8 percent in 1974, this was approximately three times agriculture's share of employment in the nation.

The total value of all crops harvested in the Region in 1973 was \$6.3 billion (in current dollars, see Chapter IV). Of this amount, \$2.2 billion (35 percent) was wheat, \$1.6 billion (25 percent) was corn, and \$864 million (14 percent) was hay. Of the total value of crops harvested, \$3.6 billion was sold in the market place by farmers. The remaining amount (\$2.7 billion) was consumed on farms by livestock and poultry. The total value of livestock and poultry sold during 1973 was \$5.0 billion. Thus, the total value of all farm produce sold during 1973 in the Region was \$8.6 billion. This was distributed between the States as follows: Montana, \$1.1 billion (12.4 percent); Nebraska, \$3.7 billion (43.2 percent); North Dakota, \$1.7 billion (20.1 percent); South Dakota, \$1.7 billion (19.7 percent); and Wyoming, \$389 million (4.5 percent).

3

Employment estimates as presented here are consistent with the "work force" definition. Total number of jobs are counted using this definition.

8.1.2 Mining

Real earnings in mining increased from \$133 million in 1950 to \$264 million in 1974, an annual growth rate of 2.9 percent. The corresponding growth rate in the nation was only 1.2 percent. The Region's growth in mining was not evenly distributed throughout the study period. For instance, earnings grew at an annual rate of 2.4 percent from 1950 to 1959, 1.4 percent from 1959 to 1970, and by 8.3 percent from 1970 to 1974.

Employment in mining in 1962 was 25,300, down from 27,800 in 1959 and 26,300 in 1950. Since 1962, employment in mining increased to 33,800 by 1974. Approximately 70 percent of the growth from 1962 to 1974 occurred during the 1970-1974 period. This recent surge reflects, largely, the impact of energy shortages on increased petroleum extraction and coal mining. Mining's share of total employment in the Region was 1.9 percent in 1974, which was more than double mining's share of total national employment.

The total value of mineral production in the Region in 1974 was \$2.5 billion (in current dollars, see Chapter IV). Of this amount, crude petroleum accounted for \$1.4 billion (54 percent), copper accounted for \$213 million (8.4 percent), coal \$198 million (7.8 percent), and gold and silver accounted for \$77 million (3.0 percent). The value of crude petroleum production more than doubled from 1971 to 1974, and the value of coal production increased by almost four times during this same period. The total value of 1974 mineral production was distributed between the five States in the Region as follows: Montana, \$576 million (22.8 percent); Nebraska, \$99 million (3.9 percent); North Dakota, \$180 million (7.1 percent); South Dakota, \$118 million (4.7 percent); and Wyoming, \$1.6 billion (61.5 percent).

8.1.3 Contract Construction

During the study period, real earnings in contract construction in the Region increased from \$351 million in 1950 to \$785 million in 1974, or 3.4 percent annually. However, earnings in construction have experienced significant year-to-year fluctuations. These variations can be related to several factors, including: cyclical fluctuations in national construction activity and regional construction of major highways, reclamation projects and military installations, and uneven expansion of other sectors in the Region such as manufacturing, mining and TCU

Employment in contract construction increased from 65,700 in 1950 to 95,100 in 1974, or 1.6 percent per year. However, employment in this sector grew at 6.7 percent per year from 1970 to 1974, principally due to 1) the construction of major coal-fired electric generating plants, and 2) the expansion in the mining and manufacturing sectors during this period. Contract construction accounted for 5.2 percent of total Region employment in 1974, which was approximately equivalent to the national share of this sector. The distribution of contract construction employment between the five States was roughly equivalent to the distribution of total employment between these States. However, since 1970, Wyoming has had more than its proportionate share due to the construction of major coal-fired electric generating plants.

8.1.4 Manufacturing

Manufacturing earnings (1967 dollars) in the Region increased from \$429 million in 1950 to \$1.2 billion in 1974, or 4.3 percent per year. This growth was 19 percent faster than manufacturing earnings in the nation.

Approximately 27 percent of total manufacturing earnings in the Region in 1972 were generated by "food and kindred products" firms; 29 percent by "other manufacturing" (i.e., paper and allied products, petroleum refining, primary metals, fabricated metals, and miscellaneous activities; 24 percent by "machinery and transportation equipment" firms; 10 percent by "lumber and furniture" firms; and 10 percent by "textiles, apparel, printing and chemicals" firms.¹

Manufacturing employment in the Region increased from 113,500 in 1950 to 186,900 in 1974, or 2.1 percent annually. This is almost double the growth rate of manufacturing employment in the nation. Manufacturing's share of total employment in the Region increased from 8.3 percent in 1950 to 10.3 percent in 1974. However, manufacturing's share of total employment in the Region was almost 60 percent below manufacturing's share of employment in the nation in 1974. The distribution of manufacturing employment between the five States in 1974 was as follows: Montana, 15.3 percent; Nebraska, 56.7 percent; North Dakota, 9.0 percent; South Dakota, 13.9 percent; and Wyoming, 5.1 percent.

8.1.5 Transportation, Communications, and Utilities (TCU)

Real earnings in TCU increased from \$520 million in 1950 to \$880 million in 1974, an annual increase of 2.2 percent. This is about 33 percent below the corresponding national growth rate. However, the growth rate from 1970-1974 in the Region was 4.6 percent compared to only 3.3 percent in the nation.

In 1972, transportation accounted for 63 percent of total Region earnings in TCU. Of this amount, railroads accounted for 52 percent, motor freight accounted for 35 percent, and "other" transportation for 13 percent. Communications accounted for 23 percent of total TCU earnings in 1972, and electric, gas, and sanitary facilities utilities accounted for the remaining 14 percent of total earnings.

Regional employment in TCU in 1974 was 114,200, which was an increase from 101,800 in 1968, but down from the 1950 level of 119,700. In 1974, TCU's share of total employment in the Region was 6.3 percent, compared to 8.7 percent in 1950. TCU's share of total national employment declined from 7.7 percent in 1950 to 5.7 percent in 1974. Thus, TCU's share of total employment in the Region has been slightly greater than in the nation. The distribution of TCU employment between the five States generally follows the distribution of total employment between these States, except that Montana and Wyoming have slightly more than their proportionate shares, and North Dakota and South Dakota have slightly less than their proportionate shares.

¹

The sub-sector distributions of 1972 earnings discussed in this chapter come directly from the special computer runs provided by Bureau of Economic Analysis, U.S. Department of Commerce.

8.1.6 Wholesale and Retail Trade

Real earnings in trade increased from \$1.1 billion in 1950 to \$1.9 billion in 1974, or an annual growth rate of 2.2 percent. During the same period, employment increased from 254,900 to 398,600, or 1.9 percent per year.

Trade, in 1974, was the Region's second largest sector in earnings and the largest sector in employment; accounting for 16.6 percent of total earnings and 21.9 percent of total employment. The Region share ratios are slightly higher than the corresponding ratios in the nation.

The demand for wholesale and retail trade is primarily local. Therefore, the growth and geographic distribution of the trade sector has paralleled the economic development of the respective communities within the Region. Rising incomes and the somewhat increased concentration of the population in more urbanized areas have resulted in enlarged markets for wholesale and retail trade. However, many rural areas of the Region have not experienced comparable growth in trade due to the lack of significant economic growth in one or more of the "basic" sectors.

The distribution of earnings and employment of the trade sector between the five States generally follows the distribution of total earnings and employment between these States, except Wyoming which has proportionately less. This is due to the fact that a substantial part of Wyoming is served by wholesale trade and distribution centers outside of the State (e.g., Billings, Denver, and Salt Lake City).

8.1.7 Finance, Insurance and Real Estate (FIRE)

FIRE is a secondary sector in the Region's economy since it is largely dependent upon the economic activity in other sectors. Consequently, the regional pattern of growth reflects the sensitivity of this sector to economic activity in mining, manufacturing, government and TCU. Real earnings in FIRE increased from \$172 million in 1950 to \$461 million in 1974, or 4.2 percent per year.

Regional employment in FIRE increased from 38,700 in 1950 to 76,200 in 1974, equivalent to 2.9 percent annually. The corresponding rate for the nation was 3.3 percent, or 14 percent faster than the Region's rate. FIRE's share of total employment in Nebraska is significantly above FIRE's share in the other States. This reflects the presence of the relatively large financial institutions located in the Omaha area.

8.1.8 Services

Real earnings in services increased from \$478 million in 1950 to \$1.3 billion in 1974, or 4.3 percent per year. The earnings growth of this sector was second only to State and local government as the fastest growing sector in the Region's economy during the study period. However, real earnings growth in services in the nation was still 21 percent faster than the growth rate in the Region for this period.

Employment in services increased from 144,000 in 1950 to 311,300 in 1974, or 3.3 percent per year, compared to 3.4 percent in the nation. Services' share of total employment in the Region was 17.1 percent in 1974, second only to trade as the sector providing the most jobs in the Region's economy.

Professional services accounted for 63 percent of total earnings in the services sector in 1972, with other services (i.e., lodging places, repair services, amusements and recreation services, personal services, and private household services) accounting for the balance. The 1972 distribution of services earnings and employment between the five States follows, in general, the distribution of total earnings and employment between these States.

8.1.9 Federal Government

Federal Government's (including military) share of total real earnings in the Region in 1974 was 7.5 percent, up from 5.4 percent in 1950 (but down from 8.4 percent in 1972). Federal Government's share of total regional earnings in 1974 was 15 percent above Federal Government's share of earnings in the nation. The Region's real earnings in this sector increased from \$317 million in 1950 to \$849 million in 1974, or 4.2 percent per year, compared to the corresponding national rate of 4.3 percent.

Employment in the Federal Government sector increased from 56,800 in 1950 to 101,500 in 1974 (2.5 percent per year). Federal Government employment accounted for 5.6 percent of total employment in the Region in 1974, which is 70 percent above Federal Government's share of total employment in the nation.

In 1972, civilian government employment in the Region accounted for 57 percent of total earnings in the Federal Government sector, with military personnel accounting for the remainder. Civilian government employment in the nation provided 64 percent of total earnings in the Federal Government sector, and reflects the somewhat larger share of military installations in the Region as compared to the nation as a whole. In 1974, the distribution of Federal Government employment between the five States was as follows: Montana, 17.0 percent; Nebraska, 29.6 percent; North Dakota, 23.9 percent; South Dakota, 18.8 percent; and Wyoming, 10.6 percent.

Federal outlays for the Region in FY 1974 totaled \$5.2 billion (in current dollars, see Chapter VI). Of this amount, \$1.6 billion (30.7 percent) was expended by HEW, \$980 million (19.0 percent) by Defense, and \$774 million (15.0 percent) by Agriculture. Total Federal outlays were distributed between the five States as follows: Montana, 20.2 percent; Nebraska, 33.6 percent; North Dakota, 19.6 percent; South Dakota, 17.1 percent; and Wyoming, 9.5 percent (see Table VI-1).

8.1.10 State and Local Government

Real earnings in State and local government in the Region increased from \$338 million in 1950 to \$1.2 billion in 1974, or 5.5 percent per year. The corresponding national rate was 6.8 percent. During this same period, employment increased from 114,000 to 266,700, 3.6 percent per year, which was almost 20 percent below the national growth rate of this sector. Even so, earnings and employment growth in this sector was faster than in any other sector in the Region during the 1950-1974 period. This growth has not been limited to the urban areas, but has been spread throughout the Region. The greatest rise in this sector has been due to the increased costs of education and the need for teachers and other school personnel.¹ In addition, population growth, rising incomes, the demand for better services by the populace, highway building programs, the implementation of Federal programs and the growth of other sectors of the economy have all led to greater activity by State and local governments.

State and local government accounted for 14.7 percent of total employment in the Region in 1974, up from only 8.3 percent in 1950. These share ratios are essentially equivalent to the corresponding national share ratios. The distribution of State and local government employment between the States follows the distribution of total employment between these States.

Expenditures by State and local governments in the Old West Region for FY 1973 totaled \$3.2 billion (in current dollars, see Chapter VI). Of this amount, \$1.4 billion (42.0 percent) went to education, and \$607 million (18.8 percent) went to highways. Total State and local government expenditures were distributed between the States as follows: Montana, 19.8 percent; Nebraska, 34.9 percent; North Dakota, 16.0 percent; South Dakota, 17.4 percent; and Wyoming, 11.9 percent (see Table VI-2).

¹

See Chapter VI, Table VI-2

8.2 Montana

This section reviews the economic structure of Montana. Tables VIII-5 through VIII-7 present real earnings (1967 dollars) and employment data for the State for selected years from 1950 through 1974. Appendix D provides a more detailed sector analysis of the Montana economy. Tables D-1 through D-6 in Appendix D present real earnings and employment data for the three sub-State areas (Northeast, Southeast and West) for 1968, 1970 and 1972.

As shown in Table VIII-5, real earnings increased from \$1.1 billion in 1950 to \$2.0 billion in 1974, or 2.3 percent annually. This is less than the rate of growth in the Region's earnings of 2.7 percent, and less than the national rate of growth of 3.8 percent during this period. There has been substantial variability in real earnings over time in Montana. In fact, real earnings was \$2.2 billion in 1973, compared to only \$2.0 billion in 1974. The primary factors contributing to the year-to-year variability in real earnings are 1) the instability of agricultural earnings due to weather, and in recent years due to changes in agricultural commodity prices, 2) swings in copper prices and the resulting impact on copper mining and smelting, and 3) fluctuations in the construction industry and the resulting impact on lumber and wood products production. The major driving forces in the State's economy during the period under review have been mining (copper and crude petroleum), manufacturing (copper smelting, and lumber and wood products) and Federal Government. Although agriculture is a major sector in the State's economy, it has experienced a substantial decline in employment during the period under review and real earnings vacillate widely from year-to-year. In fact, agriculture real earnings in 1974 were about equivalent to those generated in 1950. Thus, agriculture has not been a major driving force in the recent growth of the State's economy.

Total employment in Montana increased from 222,000 in 1950 to 309,000 in 1974, or 1.4 percent per year. This is 17 percent faster than the Region's rate of employment growth, but 26 percent below the nation's rate of growth. The trade sector provided 22.5 percent of all jobs in Montana in 1974, this sector was followed by services with 17.3 percent, State and local government with 14.6 percent and agriculture with 11.9 percent. The aggregate sectorial mix in Montana is very similar to the sectorial mix in the Region.

As shown in Tables D-1 through D-6 in Appendix D, the Northeast sub-State area accounted for 37.6 percent of total earnings and 37.9 percent of total employment in Montana in 1972. The Southeast area accounted for 31.8 percent of both total earnings and total employment, and the West accounted for 30.2 percent of total earnings and 31.5 percent of total employment.

Table VIII-5
REAL EARNINGS¹
BY INDUSTRIAL SECTOR
MONTANA
SELECTED YEARS 1950-1974
(millions of constant 1967 dollars)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	361.6	58.4	72.2	91.2	116.6	198.6	27.7	95.8	57.3	60.8	1,140.3
1959	199.2	49.6	86.4	126.9	131.6	227.9	48.9	142.4	87.4	113.9	1,214.3
1962	300.1	48.4	113.2	145.2	131.5	225.2	48.5	149.6	115.7	131.4	1,408.9
1968	199.7	45.0	106.8	171.3	142.6	257.2	60.8	200.7	147.1	178.8	1,510.1
1970	292.6	53.2	108.1	175.5	147.3	266.8	59.9	217.1	143.4	197.2	1,661.1
1972	337.4	51.7	129.9	189.4	165.3	294.2	70.0	233.5	165.5	226.1	1,863.0
1973	528.6	62.0	137.3	196.1	178.0	316.9	69.8	251.8	173.3	240.8	2,153.7
1974	369.7	67.6	133.1	187.3	175.4	322.5	69.7	247.9	167.6	245.1	1,985.2

SECTOR EARNINGS AS A PERCENT OF TOTAL EARNINGS
MONTANA

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	31.7	5.1	6.3	8.0	10.2	17.4	2.4	8.4	5.0	5.3	100.0
1959	16.4	4.1	7.1	10.4	10.8	18.8	4.0	11.7	7.2	9.4	100.0
1962	21.3	3.4	8.0	10.3	9.3	16.0	3.4	10.6	8.2	9.3	100.0
1968	13.2	3.0	7.1	11.3	9.4	17.0	4.0	13.3	9.7	11.8	100.0
1970	17.6	3.2	6.5	10.6	8.9	16.1	3.6	13.1	8.6	11.9	100.0
1972	18.1	2.8	7.0	10.2	8.9	15.8	3.8	12.5	8.9	12.1	100.0
1973	24.5	2.9	6.4	9.1	8.3	14.7	3.2	11.7	8.0	11.2	100.0
1974	18.6	3.4	6.7	9.4	8.8	16.2	3.5	12.5	8.4	12.3	100.0

¹ Defined as wages and salaries, plus other labor and proprietor's income, deflated by the U.S. personal consumption price deflator.
1967=100.0.

² May not add due to rounding.

Source: See Table VIII-1.

Table VIII-6

EMPLOYMENT BY
INDUSTRIAL SECTOR
MONTANA
SELECTED YEARS 1950-1974
(in thousands)

	Agriculture ¹	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	57.0	11.2	11.5	19.7	24.0	40.2	4.5	23.5	10.4	20.0	222.0
1959	44.0	9.0	13.3	22.9	22.3	46.3	7.5	29.5	12.9	27.7	235.4
1962	41.5	7.9	14.7	25.6	20.8	46.9	7.9	31.6	15.8	29.7	242.4
1963	35.9	6.6	13.6	27.1	20.5	53.5	8.7	45.1	19.8	39.2	270.0
1970	34.7	7.5	13.1	28.2	20.6	57.2	9.3	47.0	18.1	41.8	277.5
1972	34.7	7.4	15.3	28.4	20.9	61.7	10.4	50.9	18.3	44.3	292.3
1973	38.2	7.8	16.3	29.1	21.8	65.9	11.2	51.5	16.5	44.8 ³	303.1
1974	36.7	8.6	14.9	28.5	22.8	69.5	12.1	53.3	17.3	45.2	309.0
SECTOR EMPLOYMENT AS A PERCENT OF TOTAL EMPLOYMENT											
MONTANA											
1950	25.7	5.0	5.2	8.9	10.8	18.1	2.0	10.6	4.7	9.0	100.0
1959	18.7	3.8	5.7	9.7	9.5	19.7	3.2	12.5	5.5	11.8	100.0
1962	17.1	3.3	6.1	10.6	8.6	19.4	3.3	13.0	6.5	12.3	100.0
1963	13.3	2.4	5.0	10.0	7.6	19.8	3.2	16.7	7.3	14.5	100.0
1970	12.5	2.7	4.7	10.2	7.4	20.6	3.4	16.9	6.5	15.1	100.0
1972	11.9	2.5	5.2	9.7	7.2	21.1	3.6	17.4	6.3	15.2	100.0
1973	12.6	2.6	5.4	9.6	7.2	21.7	3.7	17.0	5.4	14.8	100.0
1974	11.9	2.8	4.8	9.3	7.4	22.5	3.9	17.3	5.6	14.6	100.0

¹ Agricultural employment is based on Bureau of Census estimates, adjusted to an annual average work force definition.
² May not add due to rounding.

³ Adjusted to be consistent with the Bureau of Economic Analysis employment and earnings series.

Source: Montana State Employment Service, Montana Labor Market; Montana Annual Statewide Labor Force Report; Montana Employment and Work Force Supplements; and Bureau of Economic Analysis, Regional Economics Information System, Employment by Type and Broad Industrial Sources, and special data compilation, U.S. Department of Commerce.

Table VIII-7
REAL EARNINGS AND EMPLOYMENT
ANNUAL GROWTH RATES BY SECTOR
MONTANA
SELECTED PERIODS 1950-1974
(in percent)

	<u>Agriculture</u>	<u>Mining</u>	<u>Contract Construction</u>	<u>Manufacturing</u>	<u>Transport. Comm. & Utilities</u>	<u>Wholesale & Retail Trade</u>	<u>Finance Insurance & Real Estate</u>	<u>Services</u>	<u>Federal Gov't</u>	<u>State & Local Gov't</u>	<u>Total</u>
<u>Real Earnings</u>											
1950-1959	-6.4	-4.0	2.0	3.7	1.4	1.5	6.5	4.5	4.8	7.2	0.7
1959-1970	3.6	0.6	2.1	3.0	1.0	1.4	1.9	3.9	4.6	5.1	2.9
1970-1974	6.0	6.2	5.3	1.6	4.5	4.8	3.9	3.4	4.0	5.6	4.6
1950-1974	0.1	0.6	2.6	3.0	1.7	2.0	3.9	4.0	4.6	6.0	2.3
<u>Employment</u>											
1950-1959	-2.8	-2.4	1.6	1.7	-0.8	1.6	5.8	2.6	2.4	3.7	0.7
1959-1970	-2.1	-3.7	-0.1	1.9	-0.7	1.9	2.0	4.3	3.1	3.8	1.5
1970-1974	1.4	3.5	3.3	0.4	2.6	5.0	6.8	3.2	-1.1	2.0	2.7
1950-1974	-1.8	-1.1	1.1	1.6	-0.2	2.3	4.2	3.5	2.1	3.5	1.4

Source: From Tables VIII-5 and VIII-6.

8.3 Nebraska

This section examines the economic structure of Nebraska. Tables VIII-8 through VIII-10 present real earnings (1967 dollars) and employment for the State for selected years from 1950 through 1974. Appendix D provides a more detailed sector analysis of the Nebraska economy. Tables D-7 through D-16 in Appendix D present real earnings and employment for the five sub-State areas (Central, East, Northeast, Southeast and West) for 1968, 1970 and 1972.

As shown in Table VIII-8 real earnings for the State increased from \$2.3 billion in 1950 to \$4.4 billion in 1974, an annual growth rate of 2.7 percent. This is equivalent to the Region's growth rate in real earnings for this same period, but 29 percent below the nation's growth rate in real earnings. There has been significant variability in real earnings, during the study period. In fact, real earnings of \$5.0 billion in 1973 was higher than in 1974. The primary factors contributing to the year-to-year variability of real earnings in Nebraska are 1) the instability of agricultural earnings due to weather, and in recent years due to changes in government controls and agricultural commodity prices, and 2) the fluctuations in manufacturing activity due largely to national economic cycles. When compared with the nation, agriculture's share of employment in Nebraska was 2.6 times agriculture's share in the nation, and manufacturing's share of employment in Nebraska is 40 percent below manufacturing's share in the nation in 1974.

The major driving forces of the State's economy during the period under review have been manufacturing and Federal Government. Although agriculture is a major sector in the State's economy, it has experienced a substantial decline in employment during the 1950-1974 period and little change in real earnings contribution. Thus, it has not been a major driving force in the recent growth of the State's economy.

Total employment in Nebraska increased from 553,200 in 1950 to 727,700 in 1974, or 1.2 percent per year. This is equivalent to the rate of employment growth in the Region, but 37 percent below the employment growth rate in the nation. The trade sector provided 22.3 percent of all jobs in 1974; this sector was followed by services with 17.6 percent, manufacturing with 14.6 percent, State and local government with 13.4 percent, and agriculture with 11.4 percent. The major differences between the aggregate sectorial mix in Nebraska and in the Region occur in mining and manufacturing. In 1974 manufacturing's share of employment in Nebraska was 42 percent greater than manufacturing's share in the Region, and mining's share of employment in Nebraska was only 16 percent of mining's share in the Region.

Table VIII-8

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NEBRASKA
SELECTED YEARS 1950-1974
(millions of constant 1967 dollars)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total 2
1950	803.9	6.7	116.7	228.0	204.0	445.1	90.1	201.3	100.8	130.0	2,326.7
1959	435.1	15.6	152.7	370.6	242.7	493.1	138.7	276.8	181.0	204.0	2,510.2
1962	502.5	15.3	190.4	424.2	246.4	545.9	156.9	341.6	210.2	242.7	2,876.2
1968	497.4	11.8	214.0	575.9	291.2	659.3	198.9	474.6	233.1	361.5	3,517.8
1970	559.8	12.3	242.1	599.1	314.0	701.4	208.2	527.6	252.2	439.9	3,856.6
1972	750.6	11.1	271.5	651.7	354.5	744.7	233.9	568.9	277.1	459.0	4,323.1
1973	1,215.7	12.5	295.7	690.2	381.2	791.4	242.4	563.1	276.9	487.8	4,957.6
1974	707.7	13.4	287.3	690.1	376.1	800.7	242.3	561.3	264.8	490.8	4,434.5

SECTOR EARNINGS AS A PERCENT OF TOTAL EARNINGS
NEBRASKA

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total 2
1950	34.5	0.3	5.0	9.8	8.8	19.1	3.9	8.6	4.3	5.6	100.0
1959	17.3	0.6	6.1	14.8	9.7	19.6	5.5	11.0	7.2	8.1	100.0
1962	17.5	0.5	6.6	14.8	8.6	19.0	5.5	11.9	7.3	8.4	100.0
1968	14.2	0.3	6.1	16.4	8.3	18.7	5.6	13.5	6.6	10.3	100.0
1970	14.5	0.3	6.3	15.5	8.1	18.2	5.4	13.7	6.5	11.4	100.0
1972	17.4	0.3	6.3	15.1	8.2	17.2	5.4	13.2	6.4	10.6	100.0
1973	24.5	0.3	6.0	13.9	7.7	16.0	4.9	11.4	5.6	9.8	100.0
1974	16.0	0.3	6.5	15.6	8.5	18.1	5.5	12.7	6.0	11.1	100.0

¹ Defined as wages and salaries, plus other labor and proprietor's income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add due to rounding.

Source: See Table VIII-1.

Table VIII-9

EMPLOYMENT BY
INDUSTRIAL SECTOR
NEBRASKA
SELECTED YEARS 1950-1974
(in thousands)

	Agriculture ¹	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	155.4	1.4	23.6	64.6	50.8	105.7	21.6	64.5	21.0	44.6	553.2
1959	113.5	3.3	26.7	78.3	46.9	111.5	27.0	77.1	30.7	58.2	573.2
1962	110.8	2.3	22.7	81.3	44.0	116.6	28.7	80.1	33.7	63.0	589.7
1968	91.3	2.0	28.8	96.2	42.2	136.3	29.2	106.1	31.1	80.0	633.2
1970	80.8	2.0	30.0	98.3	43.0	145.9	31.2	112.0	30.6	92.6	666.4
1972	82.7	1.9	30.8	100.3	43.3	151.0	33.3	120.0	30.7	92.4	686.4
1973	83.9	1.8	33.8	105.1	45.2	159.4	35.33	124.03	30.1	94.0	712.6
1974	83.1	2.0	34.6	106.0	46.6	162.6	37.03	128.13	30.0	97.7	727.7
SECTOR EMPLOYMENT AS A PERCENT OF TOTAL EMPLOYMENT											
NEBRASKA											
1950	28.1	0.3	4.3	11.7	9.2	19.1	3.9	11.7	3.8	8.1	100.0
1959	19.8	0.6	4.7	13.7	8.2	19.5	4.7	13.4	5.4	10.1	100.0
1962	18.9	0.5	4.9	13.8	7.5	19.8	4.6	13.6	5.7	10.7	100.0
1968	12.6	0.3	4.6	15.2	6.7	21.5	4.5	16.8	4.9	12.6	100.0
1970	12.1	0.3	4.5	14.8	6.5	21.9	4.7	16.8	4.6	13.9	100.0
1972	12.0	0.3	4.5	14.6	6.3	22.0	4.4	17.5	4.5	13.5	100.0
1973	11.8	0.2	4.7	14.7	6.3	22.4	5.2	17.2	4.2	13.2	100.0
1974	11.4	0.3	4.8	14.6	6.4	22.3	5.1	17.6	4.1	13.4	100.0

¹ Agricultural employment is based on Bureau of Census estimates, adjusted to annual work force definition.

² May not add to 100.0 due to rounding.

³ Adjusted to be consistent with the Bureau of Economic Analysis employment and earnings series.

Source: Nebraska Department of Labor, Division of Employment, Work and Labor Force Summaries; Nebraska Department of Labor, Division of Employment, Estimated Total Nonagricultural Wage and Salary Employment; and Bureau of Economic Analysis, Regional Economic Information System, Employment by Type and Broad Industrial Sources, and special data compilation, U.S. Department of Commerce.

Table VIII-10

REAL EARNINGS AND EMPLOYMENT
ANNUAL GROWTH RATES BY SECTOR
NEBRASKA
SELECTED PERIODS 1950-1974
(in percent)

	<u>Agriculture</u>	<u>Mining</u>	<u>Contract Construction</u>	<u>Manufacturing</u>	<u>Transport. Comm. & Utilities</u>	<u>Wholesale & Retail Trade</u>	<u>Finance Insurance & Real Estate</u>	<u>Services</u>	<u>Federal Gov't</u>	<u>State & Local Gov't</u>	<u>Total</u>
<u>Real Earnings</u>											
1950-1959	-6.6	9.8	3.0	5.5	2.0	1.1	4.9	3.6	6.7	5.1	0.9
1959-1970	2.3	-2.2	4.3	4.5	2.4	3.3	3.8	6.0	3.1	7.2	4.0
1970-1974	6.0	2.2	4.4	3.6	4.6	3.4	3.9	1.5	1.2	2.8	3.5
1950-1974	-6.5	2.9	3.8	4.7	2.6	2.5	4.2	4.4	4.1	5.7	2.7
<u>Employment</u>											
1950-1959	-3.4	10.0	1.4	2.2	-0.9	0.6	2.5	2.0	4.3	3.0	0.4
1959-1970	-3.0	-4.5	1.1	2.1	-0.8	2.5	1.3	3.5	0.0	4.3	1.4
1970-1974	0.7	0.0	3.6	1.9	2.0	2.8	4.4	3.4	-0.5	1.4	2.2
1950-1974	-2.6	1.5	1.6	2.1	-0.4	1.8	2.3	2.9	1.5	3.3	1.2

Source: From Tables VIII-8 and VIII-9.

The distribution of total employment in 1972 between the five sub-State areas was as follows: Central, 20.4 percent; East (Omaha), 38.9 percent; Northeast, 13.2 percent; Southeast, 21.3 percent; and West (Panhandle), 6.1 percent. The distribution of earnings between these areas was approximately the same as the distribution of employment.

8.4 North Dakota

This section examines the economic structure of North Dakota. Tables VIII-11 through VIII-13 present real earnings (1967 dollars) and employment data for the State for selected years from 1950 through 1974. Appendix D provides a more detailed sector analysis of the North Dakota economy. Tables D-17 through D-24 in Appendix D present real earnings and employment data for the four sub-State areas (Northeast, Northwest, Southeast and Southwest) for 1968, 1970 and 1972.

As shown in Table VIII-11, real earnings increased from \$941 million in 1950 to \$2.1 billion in 1974, or 3.3 percent annually. This growth rate is 22 percent faster than the Region's rate during the same period, but 13 percent below the rate of growth in real earnings in the nation. There has been significant year-to-year variability in real earnings during the study period. In fact, real earnings in 1973 were \$2.4 billion, compared to only \$2.1 billion in 1974. The primary factors contributing to this year-to-year variability in real earnings are 1) the instability of agricultural earnings due to weather, and in recent years to changes in agricultural commodity prices, and 2) the timing of major construction projects. The major driving forces of the State's economy during the study period have been the manufacturing and Federal Government sectors. Although agriculture is a major sector in the State's economy, this sector has experienced over a 50 percent reduction in employment since 1950 and real earnings displayed little variation when comparing results in 1950 with those in 1972. In fact, those in 1972 were below those of 1950. Only in 1973 and 1974 have there been signs of real earnings growth activity in this sector.

Total employment in North Dakota increased from 225,100 in 1950 to 283,900 in 1974, an annual growth rate of 1.0 percent. This is 17 percent below the employment growth rate for the Region during this same period, and almost 50 percent below the growth rate of employment in the nation.

The trade sector provided 22.2 percent of all jobs in North Dakota in 1974. This sector was followed by services with 17.1 percent, State and local government with 16.1 percent, and agriculture with 15.3 percent. The aggregate sectorial mix of employment in North Dakota has many similarities to the sectorial mix in the Region, except that 1) in 1974 manufacturing's share of employment in North Dakota was only about 60 percent of manufacturing's share in the Region, 2) mining's share in North Dakota was only 37 percent of mining's share in the Region, and 3) Federal Government's share in North Dakota was 54 percent higher than that for the Region.

Table VIII-11

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTH DAKOTA
SELECTED YEARS 1950-1974
(millions of constant 1967 dollars)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	414.7	5.8	53.7	25.7	73.5	184.6	17.6	63.6	44.1	57.2	940.7
1959	169.2	17.3	75.2	35.5	81.3	210.8	33.7	95.3	58.0	91.8	868.1
1962	472.3	14.3	85.8	33.0	81.9	221.5	38.9	116.5	92.5	104.3	1,261.0
1968	234.9	14.3	72.2	56.0	93.6	249.8	49.7	160.9	147.6	151.2	1,230.2
1970	228.4	13.3	95.5	67.7	98.1	257.3	48.6	171.4	160.6	168.3	1,309.3
1972	340.7	12.8	118.6	76.7	110.0	273.1	56.9	191.7	184.3	185.0	1,549.7
1973	1,171.8	13.3	111.4	86.3	116.1	303.5	55.7	185.1	189.0	187.5	2,420.4
1974	799.3	15.5	117.6	97.6	114.1	312.0	56.3	188.7	180.3	173.9	2,054.9

SECTOR EARNINGS AS A PERCENT OF TOTAL EARNINGS
NORTH DAKOTA

1950	44.1	0.6	5.7	2.7	7.8	19.6	1.9	6.8	4.7	6.1	100.0
1959	19.5	2.0	8.7	4.1	9.4	24.3	3.9	11.0	6.7	10.6	100.0
1962	37.5	1.1	6.8	2.6	6.5	17.6	3.1	9.2	7.3	8.3	100.0
1968	19.1	1.2	5.9	4.6	7.6	20.3	4.0	13.1	12.0	12.3	100.0
1970	17.4	1.0	7.3	5.2	7.5	19.7	3.7	13.1	12.3	12.9	100.0
1972	22.0	0.8	7.7	4.9	7.1	17.6	3.7	12.4	11.9	11.9	100.0
1973	48.4	0.5	4.6	3.6	4.6	12.5	2.3	7.6	7.8	7.7	100.0
1974	38.9	0.8	5.7	4.7	5.6	15.2	2.7	9.2	8.8	8.5	100.0

¹ Defined as wages and salaries, plus other labor and proprietor's income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add due to rounding.

Source: See Table VIII-1.

Table VIII-12
EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTH DAKOTA
SELECTED YEARS 1950-1974
(in thousands)

	Agriculture ¹	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	96.8	0.9	9.5	7.1	16.5	42.2	5.0	19.9	7.0 ³	18.2 ³	225.1
1959	71.2	2.8	14.0	8.4	15.8	45.8	6.6	27.8	8.5 ³	25.4 ³	226.3
1968	65.4	2.2	14.0	8.6	14.9	44.8	7.3	29.9	12.7 ³	27.2 ³	227.0
1969	47.3	2.4	10.1	10.5	14.5	52.4	7.5	39.8	21.9	42.5	248.9
1970	44.6	1.5	12.3	12.2	14.8	55.7	8.0	40.7	22.1	44.9	257.2
1972	43.1	2.0	14.2	12.9	14.6	57.8	8.6	45.4	22.9 ³	44.9	266.4
1973	42.2	1.9	13.7	15.0	15.1	60.8	9.2	46.5	24.3 ³	45.7 ³	274.4
1974	43.5	2.0	14.5	16.9	15.5	63.1	9.8	48.6	24.3 ³	45.7 ³	283.9
SECTOR EMPLOYMENT AS A PERCENT OF TOTAL EMPLOYMENT NORTH DAKOTA											
1950	40.9	0.4	4.2	3.1	7.3	18.7	2.2	8.8	3.1	8.1	100.0
1959	31.5	1.2	6.2	3.7	7.0	20.2	2.9	12.3	3.8	12.0	100.0
1968	28.6	1.0	6.2	3.8	5.6	19.7	3.2	13.2	5.6	10.9	100.0
1969	19.0	1.0	4.1	4.2	5.8	21.0	3.0	16.0	8.8	17.1	100.0
1970	17.3	0.7	4.8	4.7	5.6	21.7	3.1	15.8	8.6	17.5	100.0
1972	16.2	0.8	5.3	4.8	5.5	21.7	3.2	17.0	8.6	16.9	100.0
1973	15.4	0.7	5.0	5.5	5.5	22.2	3.3	16.9	8.9	16.7	100.0
1974	15.3	0.7	5.1	6.0	5.5	22.2	3.5	17.1	8.6	16.1	100.0

¹ Agricultural employment is based on Bureau of Census estimates, adjusted to an annual work force definition.

² May not add to 100.0 due to rounding.

³ Federal and State and Local government were broken out of total government based on earnings and employment ratios for known years.

Source: North Dakota Employment Security Bureau, Estimates of North Dakota Labor Force; Estimates of North Dakota Work Force; North Dakota Agricultural Employment; and Bureau of Economic Analysis, Regional Economic Information System, Employment by Type and Broad Industrial Sources, and special data compilation, U.S. Department of Commerce.

Table VIII-13
REAL EARNINGS AND EMPLOYMENT
ANNUAL GROWTH RATES BY SECTOR
NORTH DAKOTA
SELECTED PERIODS 1950-1974
(in percent)

	<u>Agriculture</u>	<u>Mining</u>	<u>Contract Construction</u>	<u>Manufacturing</u>	<u>Transport. Comm. & Utilities</u>	<u>Wholesale & Retail Trade</u>	<u>Finance Insurance & Real Estate</u>	<u>Services</u>	<u>Federal Gov't</u>	<u>State & Local Gov't</u>	<u>Total</u>
<u>Real Earnings</u>											
1950-1959	-9.5	12.9	3.8	3.6	1.1	1.9	7.5	4.6	3.1	5.4	-0.3
1959-1970	2.8	-2.4	2.2	6.1	1.7	1.8	3.4	5.5	9.7	5.7	3.8
1970-1974	36.7	3.9	5.3	9.6	3.8	4.9	3.7	2.4	2.9	0.8	11.9
1950-1974	2.8	4.2	3.3	5.7	1.8	2.2	5.0	4.6	6.0	4.7	3.3
<u>Employment</u>											
1950-1959	-3.6	13.4	4.4	1.9	-0.5	0.9	3.1	3.8	2.2	3.8	1.2
1959-1970	-4.2	-3.5	-1.2	3.5	-0.6	1.8	1.8	3.5	9.1	5.3	0.8
1970-1974	-0.6	1.3	4.2	8.5	1.2	3.2	5.2	4.5	2.4	0.4	2.3
1950-1974	-3.4	3.4	1.8	3.7	-0.3	1.7	2.8	3.8	5.3	3.9	1.2

Source: From Tables VIII-11 and VIII-12.

The distribution of total employment in 1972 between the four sub-State areas was as follows: Northeast, 24.3 percent; Northwest, 20.9 percent; Southeast, 32.6 percent; and Southwest, 22.2 percent.

8.5 South Dakota

This section examines the economic structure of South Dakota. Tables VIII-14 through VIII-16 present real earnings (1967 dollars) and employment data for the State for selected years from 1950 through 1974. Appendix D provides a more detailed sector analysis of the South Dakota economy. Tables D-25 through D-30 in Appendix D present real earnings and employment data for the three sub-State areas (Northeast, Southeast and West) for 1968, 1970, and 1972.

As shown in Table VIII-14, real earnings increased from \$955 million in 1950 to \$1.7 billion in 1974, or 2.5 percent per year. This growth is 7 percent below the Region's rate during the same period, and about 34 percent below the national rate. However, there has been significant year-to-year variability in earnings in South Dakota. In fact, earnings in 1973 (\$2.1 billion) was higher than earnings in 1974 (\$1.7 billion). The primary factors contributing to the year-to-year variability are 1) the instability of agricultural earnings due to weather, and in recent years to changes in agricultural commodity prices, 2) the timing of major construction projects, and 3) fluctuations in Federal Government activity, primarily in the military sector. Manufacturing and Federal Government have been the major driving forces in the State's economy during the review period.

Although agriculture provides a significant proportion of total earnings and employment in South Dakota, employment in this sector dropped by 50 percent during the period under review and real earnings in 1974 were not that much greater (26 percent) than in 1950. Consequently, this sector has not been a major driving force in the recent growth of the State's economy.

Total employment in South Dakota increased from 260,200 in 1950 to 315,500 in 1974, or 0.8 percent per year. This rate is only two-thirds that of the Region, and 60 percent below the rate of growth in the nation. However, the annual employment growth in South Dakota during the 1970-1974 period was 2.8 percent. This is slightly higher than the Region's growth rate during this period and 17 percent faster than the corresponding national rate. The trade sector provided 21.5 percent of all jobs in South Dakota in 1974. This sector was followed by agriculture and services, each with 17.3 percent of total employment, and by State and local government with 16.2 percent of all jobs. The aggregate sectorial mix of employment in South Dakota is very similar to the mix in the Region, except that in 1974 agriculture's share of employment in South Dakota was 35 percent more than agriculture's share in the Region, and manufacturing's share in South Dakota was 20 percent below manufacturing's share in the Region.

Table VIII-14

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTH DAKOTA
SELECTED YEARS 1950-1974
(millions of constant 1967 dollars)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	385.6	12.3	62.8	49.9	52.9	178.5	22.1	76.3	55.1	59.1	954.8
1959	136.7	14.0	67.5	74.4	60.5	193.7	34.4	109.0	91.4	88.9	870.5
1962	365.3	13.0	118.0	86.1	71.2	219.7	38.1	133.7	94.6	107.1	1,246.9
1968	367.1	14.2	62.8	106.4	76.8	246.5	53.4	177.1	119.0	159.2	1,382.4
1970	319.8	13.9	62.8	112.7	84.3	252.8	51.9	186.0	129.3	182.1	1,395.6
1972	439.1	14.9	79.6	130.7	97.0	259.9	56.1	204.5	151.1	201.0	1,634.0
1973	875.3	20.4	93.3	138.0	102.7	282.4	58.8	194.5	150.6	203.1	2,119.2
1974	486.6	20.4	95.1	141.5	102.8	290.8	60.6	193.0	145.8	188.0	1,723.9

SECTOR EARNINGS AS A PERCENT OF TOTAL EARNINGS
SOUTH DAKOTA

1950	40.4	1.3	6.6	5.2	5.5	18.7	2.3	8.0	5.8	6.2	100.0
1959	15.7	1.6	7.6	8.5	7.0	22.3	3.9	12.5	10.5	10.2	100.0
1962	29.3	1.0	9.5	6.9	5.7	17.6	3.0	10.7	7.6	8.6	100.0
1968	26.6	1.0	4.5	7.7	5.6	17.8	3.9	12.8	8.6	11.5	100.0
1970	22.9	1.0	4.5	8.1	6.0	18.1	3.7	13.3	9.3	13.0	100.0
1972	26.9	0.9	4.9	8.0	5.9	15.9	3.4	12.5	9.2	12.3	100.0
1973	41.3	1.0	4.4	6.5	4.8	13.3	2.8	9.2	7.1	9.6	100.0
1974	28.2	1.2	5.5	8.2	6.0	16.9	3.5	11.2	8.5	10.9	100.0

¹ Defined as wages and salaries, plus other labor and proprietor's income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add due to rounding.

Source: See Table VIII-1.

Table VIII-15

EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTH DAKOTA
SELECTED YEARS 1950-1974
(in thousands)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	104.5	3.5	11.7	15.4	14.1	47.9	5.2	26.8	9.6 ¹	21.5 ¹	260.2
1959	81.9	3.2	13.2	17.2	12.9	48.8	6.9	30.9	14.2 ¹	29.0 ¹	258.2
1962	77.7	3.1	18.2	18.2	13.3	51.3	8.3	34.4	13.8 ¹	32.5 ¹	270.8
1968	60.1	3.2	9.8	19.8	12.8	57.4	8.8	43.8	16.0	42.8	274.5
1970	58.9	3.1	9.7	20.0	13.6	59.8	9.1	45.9	16.4	45.6	282.1
1972	56.4	3.1	11.1	22.6	13.9	59.7	9.3	49.9	17.1	46.3	289.4
1973	59.2	3.3	13.0	24.9	14.9	64.2	10.1	52.4	18.5 ¹	49.1 ¹	309.6
1974	54.5	3.4	13.1	25.9	15.5	67.2	10.7	54.6	19.1 ¹	51.1 ¹	315.5

SECTOR EMPLOYMENT AS A PERCENT OF TOTAL EMPLOYMENT
SOUTH DAKOTA

1950	40.2	1.3	4.5	5.9	5.4	18.4	2.0	10.3	3.7	8.3	100.0
1959	31.7	1.2	5.1	6.7	5.5	18.6	2.0	10.4	5.5	11.2	100.0
1962	28.7	1.1	6.7	6.7	4.9	18.9	3.1	12.7	5.1	12.0	100.0
1968	22.9	1.2	3.7	7.6	4.9	21.9	3.4	16.7	6.1	16.3	100.0
1970	22.1	1.2	3.6	7.5	5.1	22.5	3.4	17.2	6.2	17.1	100.0
1972	19.5	1.1	3.8	7.8	4.8	20.6	3.2	17.2	5.9	16.0	100.0
1973	19.1	1.0	4.2	8.0	4.8	20.8	3.3	16.9	6.0	15.9	100.0
1974	17.3	1.0	4.2	8.2	4.9	21.5	3.4	17.3	6.1	16.2	100.0

1 Federal and State and Local government were broken out of total government based on earnings and employment ratios for known years.

2 May not add to 100.0 due to rounding.

Source: South Dakota Department of Manpower Affairs, Division of Employment Security, Statewide Civilian Labor Force Estimates; Statewide Civilian Work Force Estimates; Statewide Nonagricultural Wage and Salaried Employment; Estimates for Agriculture, Self-employed and Domestic; and Bureau of Economic Analysis, Regional Economic Information System, Employment by Type and Broad Industrial Sources, and special data compilation, U.S. Department of Commerce.

Table VIII-16
REAL EARNINGS AND EMPLOYMENT
ANNUAL GROWTH RATES BY SECTOR
SOUTH DAKOTA
SELECTED PERIODS 1950-1974
(in percent)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total
<u>Real Earnings</u>											
1950-1959	-10.9	1.4	0.8	4.5	1.5	0.9	5.1	4.0	5.8	4.6	-1.0
1959-1970	8.0	-0.1	-0.7	3.9	3.1	2.5	3.8	5.0	3.2	6.7	4.4
1970-1974	11.1	10.1	10.9	5.9	5.1	3.6	4.0	0.9	3.0	0.8	5.4
1950-1974	1.0	2.1	1.7	4.4	2.8	2.1	4.3	3.9	4.1	4.9	2.5
<u>Employment</u>											
1950-1959	-2.7	-1.0	1.4	1.2	-1.0	0.2	3.2	1.6	4.4	3.4	-0.1
1959-1970	-3.0	-0.3	-2.8	1.4	0.5	1.9	2.6	3.7	1.3	4.2	0.8
1970-1974	-1.9	2.3	7.8	6.7	3.3	3.1	4.1	4.4	3.9	2.9	2.8
1950-1974	-2.7	-0.1	0.5	2.2	0.4	1.4	3.1	3.0	2.9	3.7	0.8

Source: From Tables VIII-14 and VIII-15.

The distribution of total employment in 1972 between the three sub-State areas was as follows: Northeast, 31.7 percent; Southeast, 37.2 percent; and West, 31.1 percent.

8.6 Wyoming

This section examines the economic structure of Wyoming. Tables VIII-17 through VIII-19 present real earnings (1967 dollars) and employment data for the State for selected years from 1950 through 1974. Appendix D provides a more detailed sector analysis of the Wyoming economy. Tables D-31 through D-36 present real earnings and employment data for the three sub-State areas (East, Northeast, and Southwest) for 1968, 1970 and 1972.

As shown in Table VIII-17, real earnings increased from \$561 million in 1950 to \$1.1 billion in 1974, or 2.7 percent per year. This growth rate is similar to that for the Region, but 29 percent below the national growth rate. However, during the 1970-1974 period real earnings growth was 5.1 percent per year, principally due to growth in energy-related projects (mining and contract construction). Mining, manufacturing and Federal Government have been the major driving forces of the State's economy during the period under review.

Total employment increased from 111,100 in 1950 to 181,200 in 1974, or 2.1 percent annually. The corresponding rates for the Region and nation are 1.2 percent and 1.9 percent, respectively. However, it should be emphasized that half of Wyoming's total growth in employment during this 25-year period has occurred since 1970. The annual rate of increase in employment during the 1970-1974 period was 5.3 percent. The trade sector provided 19.6 percent of all jobs in Wyoming in 1974. This sector was followed by services with 15.7 percent, and State and local government with 14.9 percent. The aggregate sectorial mix of employment in Wyoming is substantially different than the mix in both the Region and in the nation. For instance, in 1974 mining's share of employment in Wyoming was over five times mining's share in the Region, and over twelve times mining's share in the nation. Manufacturing's share of employment in Wyoming was approximately one-half manufacturing's share in the Region, and only one-fifth manufacturing's share in the nation. Agriculture's share of employment in Wyoming is almost twice the national share, but only two-thirds the Regional share.

The distribution of total employment in 1972 between the three sub-State areas was: East, 72.7 percent; Northeast, 14.7 percent; and Southwest, 12.6 percent.

Table VIII-17

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
WYOMING
SELECTED YEARS 1950-1974
(millions of constant 1967 dollars)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1950	112.8	49.4	45.2	34.4	72.7	99.7	14.4	41.2	59.7	31.0	560.6
1959	92.2	68.5	74.1	56.8	76.6	108.0	20.0	68.3	45.4	64.3	674.3
1962	77.7	67.4	69.9	56.7	79.3	112.5	21.5	77.5	58.7	75.6	697.0
1968	63.4	91.0	64.2	52.0	82.3	114.8	27.4	91.7	75.4	108.9	771.2
1970	106.6	99.2	71.1	58.5	89.8	124.3	28.2	106.5	79.1	118.0	881.2
1972	113.1	104.6	91.3	63.6	100.7	131.6	31.4	106.7	91.5	138.0	972.6
1973	120.8	117.6	127.8	68.2	109.0	141.2	30.6	112.2	94.9	144.3	1,066.7
1974	76.1	146.5	151.4	66.9	111.3	150.7	31.7	114.8	90.8	137.3	1,077.5

SECTOR EARNINGS AS A PERCENT OF TOTAL EARNINGS
WYOMING

1950	20.1	8.8	8.1	6.1	13.0	17.8	2.6	7.4	10.7	5.5	100.0
1959	13.7	10.2	11.0	8.4	11.4	16.0	3.0	10.1	6.7	9.5	100.0
1962	11.1	9.7	10.0	8.1	11.4	16.1	3.1	11.1	8.4	10.8	100.0
1968	8.2	11.8	8.3	6.7	10.7	14.9	3.6	11.9	9.8	14.1	100.0
1970	12.1	11.3	8.1	6.6	10.2	14.1	3.2	12.1	9.0	13.4	100.0
1972	11.6	10.8	9.4	6.5	10.4	13.5	3.2	11.0	9.4	14.2	100.0
1973	11.3	11.0	12.0	6.4	10.2	13.2	2.9	10.5	8.9	13.5	100.0
1974	7.1	13.6	14.1	6.2	10.3	14.0	2.9	10.7	8.4	12.7	100.0

¹ Defined as wages and salaries, plus other labor and proprietor's income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add due to rounding.

Source: See Table VIII-1.

Table VIII-18
EMPLOYMENT BY
INDUSTRIAL SECTOR
WYOMING
SELECTED YEARS 1950-1974
(in thousands)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal ¹ Gov't	State & Local Gov't	Total ²
1950 ¹	22.3	9.3	9.4	6.7	14.3	18.9	2.4	9.3	8.8	9.7	111.1
1959	17.0	9.5	11.4	9.4	13.0	23.4	3.1	12.7	6.9	16.2	122.6
1962	15.9	9.3	10.1	9.1	12.8	24.8	3.3	15.8	8.5	18.2	127.8
1963	14.3	12.5	8.2	7.9	11.8	26.4	3.9	23.2	9.8	24.0	142.0
1970	14.0	13.5	8.2	8.6	12.4	27.8	4.3	24.2	9.6	24.6	147.2
1972	13.6	13.8	10.7	9.2	12.2	30.0	4.4	25.9	9.9	26.3	156.0
1973	15.5	14.9	13.5	9.7	12.95	31.7	4.6	26.6	10.3	26.4	166.1
1974	15.2	18.1	18.0	9.5	13.85	35.5	4.9	28.4	10.8	27.0	181.2
SECTOR EMPLOYMENT AS A PERCENT OF TOTAL EMPLOYMENT											
WYOMING											
1950	20.1	8.4	8.5	6.0	12.9	17.0	2.2	8.4	7.9	8.7	100.0
1959	13.9	7.8	9.3	7.7	10.6	19.1	2.5	10.4	5.6	13.2	100.0
1962	12.4	7.3	7.9	7.1	10.0	19.4	2.6	12.4	6.6	14.2	100.0
1968	10.1	8.8	5.8	5.6	8.3	18.6	2.7	16.3	6.9	16.9	100.0
1970	9.5	9.2	5.6	5.8	8.4	18.9	2.9	16.4	6.5	16.7	100.0
1972	8.7	8.9	6.9	5.9	7.8	19.2	2.8	16.6	6.3	16.9	100.0
1973	9.3	9.0	8.1	5.8	7.8	19.1	2.8	16.0	6.2	15.9	100.0
1974	8.4	10.0	9.9	5.2	7.6	19.6	2.7	15.7	6.0	14.9	100.0

¹ Generated from Bureau of Census employment estimates, Bureau of Economic Analysis earnings data, and Wyoming State Employment Security estimates.

² Generated from Bureau of Economic Analysis earnings data.

³ Includes military.

⁴ May not add to 100.0 due to rounding.

⁵ Adjusted to be consistent with Bureau of Economic Analysis earnings data.

Source: Bureau of Economic Analysis, Regional Economic Analysis, Regional Economic Information System, Employment and Earnings by Type and Broad Industrial Sources and special data compilation, U.S. Department of Commerce; Bureau of Census, Census of Population-General Social and Economic Characteristics: Wyoming, 1950, 1960; and Wyoming Employment Security Commission, "Covered Employment Estimates" for various years and Labor Force Summary, 1970-1974.

Table VIII-19
REAL EARNINGS AND EMPLOYMENT
ANNUAL GROWTH RATES BY SECTOR
WYOMING
SELECTED PERIODS 1950-1974
(in percent)

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total
<u>Real Earnings</u>											
1950-1959	-2.2	3.7	5.6	5.7	0.0	0.9	3.7	5.8	-3.0	8.5	2.1
1959-1970	1.3	3.4	-0.4	0.3	1.5	1.3	3.2	4.1	5.2	5.7	2.5
1970-1974	-8.1	10.2	20.8	3.4	5.5	4.9	3.0	1.9	3.5	3.8	5.1
1950-1974	-1.6	4.6	5.2	2.8	1.8	1.7	3.3	4.4	1.8	6.4	2.7
<u>Employment</u>											
1950-1959	-3.0	0.2	2.2	3.8	-1.1	2.4	2.9	3.5	-2.7	5.9	1.1
1959-1970	-1.8	3.3	-3.0	-0.8	-0.4	1.0	3.0	6.0	3.1	3.9	1.7
1970-1974	2.1	7.6	21.7	2.5	2.7	6.3	3.3	4.1	3.0	2.4	5.3
1950-1974	-1.6	2.8	2.7	1.5	-0.1	2.7	3.0	4.8	0.9	4.4	2.1

Source: From Tables VIII-17 and VIII-18.

CHAPTER IX

POTENTIALS AND PROBLEMS

9.1 Summary

This chapter draws from the previous areas of analysis and from a special survey of public officials and employers from the Region (see Appendix E) to highlight the areas of economic potential and problems facing the Region during the next ten years.

For potentials, the Region shows economic promise in attaining higher levels of earnings, in agriculture, food processing, and related agribusiness, mining of fuels, fuel processing, mining of non-fuel minerals, manufacturing, tourism, and forestry. Other advantages or potentials include the availability of excess power output, and a labor force with relatively high educational attainment levels and skill levels. These advantages have been major elements in attracting the larger industrial employers in the Region. In addition, the Region has a highly mobile job-seeking labor force, and is also characterized generally as a clean environment, an area with substantial land resources, numerous natural attractions, an abundance of water in certain locations, adequate transportation, and high public investment on a per capita basis.

There are problems in the Region that are subject to little or no control over the next 10 years, and other problems which could be at least partially controlled. Among the former are:

- 1) the population distribution and size;
- 2) distance from markets;
- 3) availability and costs of fuel and fertilizer;
- 4) the lack of transportation focal points; and
- 5) price instability in agricultural products, uranium and copper.

Low per capita personal income in the Region, resulting largely from low earnings per job, is a major problem in the Region. Generally low farm earnings (per job) are partly responsible for this condition. Improvement in job earnings is subject to some control given the resource potential of the Region. Other problems in the Region which are subject to change or improvement include the lack of:

- 1) water at particular locations;
- 2) technical or industrially oriented vocational schools to provide skill training necessary for higher paying jobs in growth industries of the Region;
- 3) adequate vacant housing to support general economic development and growth;

- 4) public investment or community facilities in high growth communities; and
- 5) sufficient numbers of physicians and public expenditures for health facilities and hospitals.

In addition, looking only at the private sector, the larger private firms in the Region finance growth via parent corporations outside the Region or from retained earnings. In the former case, key decisions are not made by institutions with a self-interest in the Region, in the latter continued economic growth is necessary to finance investments. Additional funds for private capital formation would overcome much of this problem. Also, two issues appear key to future private investment and locational decisions:

- 1) the quality of the labor force; and
- 2) environmental concerns.

The former focuses on the attitude and aptitude of the labor force, and the private sector is concerned about the future. Environmental issues are receiving much publicity in and outside the Region. The private sector and public at large are very concerned about the future. There is a great deal of conflict, but no real dialogue between environmentalists on the one hand or the private sector on the other on how to achieve (or approach) mutual goals. In addition, employer questionnaires reflect large dissatisfaction with the degree of inter-governmental coordination achieved in the Region. Such coordination could have positive impacts on the public generally and on improving the dialogue between various groups or parties in the Region.

9.2 Potentials

The Old West Region has a number of economic areas which show substantial potential for new or continued growth. These areas include: agriculture, food processing, mining of fuels, fuel processing, mining of non-fuel minerals, manufacturing, tourism, and forestry. In addition, other factors which are supportive to the foregoing specific sectors are present in the Region. The following sections review each sector with respect to its growth potential.

9.2.1 Agriculture

Despite the fact that farm acreage has shown no growth since 1959 (see Table IV-8), the value of agricultural products sold increased 217 percent from 1959 to 1973 (see Table IV-9). The Region's share of national agricultural production rose from 8.9 percent in 1959 to 10.3 percent in 1973, and the Region produces over 30 percent of the nation's wheat output. It is clear from these production and growth figures that the Old West Region's economy is heavily tied to agriculture, and agriculture is experiencing steady growth. Moreover, the attitude of public officials in the Region

is highly favorable to more growth in the agricultural sector (see Appendix E, Figure E-17). The current size of this sector, the growth trends, and the favorable attitudes toward agricultural development exemplify the potential for agricultural growth in the Region.

9.2.2 Food Processing

Food processing for the Region has a natural linkage to agriculture (food production) because of the availability of large quantities of unprocessed agricultural products in the Region. Also, a special analysis of the survey of employers indicates that 14 percent of the employers which experienced substantial growth (growth of over 20 percent during the past five years) are engaged in food processing. In addition, an analysis of BEA statistics for the Region indicates that despite absolute production increases in every major commodity at a rate exceeding 40 percent from 1959 to 1969, there was only a 13 percent growth in absolute earnings in food processing over the same period. The above factors indicate that while there is a growth trend in the Region for food processing, this trend is not keeping up with the growth in agricultural production. Thus, it is probable that the Region is not obtaining "its share" of the growth from the natural linkage between agriculture and food processing. This would indicate that areas outside the Region are processing more and more of the Region's agricultural production, and potential exists for the Region to capture a greater share of the food processing activities related to its own production of unprocessed food products.

9.2.3 Mining of Fuels

The fact that the Region has substantial coal, petroleum, and natural gas resources is indisputable. All of these fuels have shown substantial production increases since 1951 (see Table IV-12). In particular, the coal reserves are quite large in the Region (see Tables IV-13). Development pressures are also manifest in mining lease applications and increases in production at existing facilities. Development of these natural resources is a potential of significant proportion for the Old West Region, but these potentials are somewhat localized compared to agricultural potential. Mining requires the greatest economic activity near the natural deposits, and these are, in the case of coal mining, primarily in the Fort Union area of Montana, North Dakota and Wyoming.

9.2.4 Fuel Conversion

Conversion of the fuels which are found in such abundance in the Region is also an area of economic potential for the Region. The Region is currently a net exporter of electrical power (see Table VI-15). About 21 percent (on a net basis) of production is exported. Moreover, a survey of the Federal Power Commission (FPC) indicates that over 50 power plants are under construction or permit applications for future construction are pending. Also one application has been submitted to the FPC for a coal gasification plant. This activity manifests the economic pressures to convert the fuels which are found in such abundance in the Region.

9.2.5 Manufacturing

The growth in real earnings in manufacturing other than food processing was 67 percent between 1950 and 1959, and the growth between 1959 and 1969 was 78 percent. The survey of employers indicates that the availability of power and the skills of the work force are key determinants of location of manufacturing facilities. The Region is a net exporter of electrical power (see Table VI-15), and educational achievement of the Region's population exceeds the national average (see Chapter III). The Region is already experiencing substantial growth in manufacturing, and key elements to support future growth appear to be present.

9.2.6 Mining of Non-Fuel Minerals

While the growth in mining of non-fuel minerals has not been so spectacular as the growth in mining of fuels, non-fuel mining has shown increases in activity from 1951 to 1974 (see Table IV-12). Non-fuel mining (e.g., trona, copper, etc.) represented about 40 percent of the mineral production for the Region in 1974, so this area of mineral development still represents a potential for the Region.

9.2.7 Tourism

There are a number of natural attractions throughout the Region, and travel expenditures in the Region exceed the national average on a per capita basis. Both the day and overnight stays in the three major tourism areas (Glacier National Park, Yellowstone/Teton National Parks, and Mt. Rushmore National Monument) showed substantial growth until 1973. Moreover, the survey of public officials indicates that tourism is a desirable area of economic growth. However, tourism activities relative to agriculture, mining, and manufacturing are small. Tourism is an area of economic potential for the Region, but the extent of this potential is limited (see Chapter IV, Section 4.7).

9.2.8 Forestry

The Region has forest resources, particularly in the western areas, but the potential for increased development of these resources is small (see Chapter IV, Section 4.5) relative to the other economic sectors. However, forestry products' potential impact in localized areas in the western parts of the Region is important.

9.2.9 Other Factors

The Region has a number of other features which are generally supportive of the areas of potential previously outlined. The Region has a relatively clean environment, substantial land resources, an abundance of water in specific locations, adequate (though not superlative) transportation, relatively high public investment on a per capita basis which can

accommodate some marginal growth without new investment, and a relatively mobile labor force. The labor force mobility is evident from the migration activity which has characterized the Region's population. The Region's population has also achieved an educational level ahead of the national figures, and the labor participation rate is high, indicating a willingness of the population to work at multiple jobs and/or for longer periods of their lives.

9.3 Problems Which Are Not Controllable Over The Next Ten Years

There are factors inherent in the Region's makeup which tend to restrict some of the potentials outlined earlier. Moreover, the nature of these restrictive characteristics are such that they cannot be controlled significantly during the next ten years. Each of these features is discussed in the following sections.

9.3.1 Population Distribution and Size

The population of the Region is small in size and is not concentrated. The sparseness of the population restricts both the size and location of internal markets. It is clear from Figure II-1 that major urban areas surround the Region. Also, there are only six urban areas within the Region with populations exceeding 50 thousand (see Table II-4), and these are not focussed centrally in the Region. The lack of urban areas often restricts the size of new facilities which current or potential employers can build because work force size limitations could make it difficult to recruit sufficient numbers of workers above certain sizes.

9.3.2 Distance From Markets

Most of the major market areas of the United States are substantial distances from any parts of the Region, and the market within the Region itself is limited. Thus, manufacturing of products with relatively high transportation costs is difficult for manufacturers located within the Region, and these manufacturers tend to locate near major markets.

9.3.3 Availability and Costs of Fuel and Fertilizer

The heavy agricultural activity in the Region and the relatively large distances associated with intra-regional travel make the Region vulnerable to both the availability and costs of fuel and petrochemical fertilizers. The Organization of Petroleum Exporting Countries dominates the world market for crude oil and has been able to increase the cost of imported crude oil from approximately \$2.50 per barrel to over \$12.00 per barrel in less than five years. Also, Federal policy has a direct bearing on petroleum prices, and a comprehensive Federal energy policy has not yet been established. In any event, the policies regarding petroleum are not substantially controllable by any activities within the Region despite the relatively high cost impacts on both travel and agriculture within the Region.

9.3.4 Lack of Transportation Focal Points

The Region has few railroad, highway, or air transportation focal points where many routes converge for either intra- or inter-modal transfer. The Region does have several locations where transportation routes converge, but few (perhaps only Omaha) of these locations are comparable to Denver, Minneapolis, Salt Lake City, or Kansas City which are all located on the Region's perimeter. As a result, manufacturing and distribution linkages to current economic activity is difficult to achieve. For example, food processing of some products produced within the Region can be more easily achieved at locations outside the Region than within the Region because of the transportation network.

9.3.5 Price Instability in Agricultural Products, Uranium, and Copper

There have been dramatic changes in grain, uranium, and copper prices during the past five years (see Table IV-9). These prices are dependent on weather, other production factors, and world demand. These factors are not controllable from year-to-year and contribute to substantial planning and economic uncertainty within the Region. Because of the importance of grain production to the Region's economy, grain price instabilities have a major influence on the entire Region's economic well-being. Price instabilities are also common in the mining sector (e.g., copper and uranium). Such fluctuations could also occur in the future prices of the Region's coal and crude oil.

9.4 Problems Which Are Somewhat Controllable Over The Next Ten Years

While the preceding factors cannot be substantially controlled over the immediate future, there are some problem areas which are partially controllable over the next ten years. These areas are discussed in the following sections.

9.4.1 Water Supplies

As indicated earlier, portions of the Region are water short despite the fact that the gross water resources available to the Region appear adequate. The difficulty is with redistribution of water from water-abundant areas to water deficient areas and with the competition for existing water supplies among alternative uses and areas. Other than the technical and investment requirements to achieve a revised distribution system, legal and other institutional uncertainties contribute to the problem of achieving any goals associated with providing additional water to water deficient areas.

9.4.2 Labor Skills and Locations

Manufacturers in the survey (Appendix E) indicated some concern regarding the attitude and aptitude of the labor force. This response pattern was consistent across the five States in the Region. These employers rate the skills of workers as their most important employment problem, and the quality of the labor force is considered a key factor in locational decisions made by employers. The occupational patterns of the work force indicate an

orientation toward agricultural-related skills (see Chapter III), and the vocational training curricula do not appear to be oriented toward supporting the potential growth areas of mining, manufacturing, and construction (see Chapter VI). Also, the technically or industrially oriented vocational schools are few in number, and on the average, relatively small and separated by great distances. Thus, it is somewhat difficult for a trainee to achieve the specific skill training associated with the high growth industries at an occupational training facility near home. The migration patterns, however, indicate relatively high mobility on the part of the work force and a willingness of workers to move to other locations with job opportunities.

9.4.3 Public Investment

While there are high per capita investments (see Chapter VI) in the Region which can accommodate general growth (e.g., highways), the public investment problem at the local level can be a serious problem for high growth areas. Growth from a low population base (the boom town phenomenon) severely strains local governments because of the lag in receiving tax revenues to support immediate public investment problems. The problem is less acute over time as the tax base increases, but the "start-up" investment requirements is severe for small, high-growth communities.

9.4.4 Environmental Impacts

The Region's environment is relatively clean, at present (see Chapter V). Any additional growth will create some environmental problems, however. Employers in the survey (Appendix E) rate the environmental laws and restrictions as the single most constraining factor influencing business growth. Public officials similarly regard environmental laws and restrictions as a major constraining factor for business development. In addition, public officials indicate that coal mining and power plant development are key problem areas with respect to environmental impacts. The relationship between economic development and environmental impacts is a major public issue which must be dealt with in any economic plan for the Region. Also, the weed, pest, and soil control related to agriculture is a problem not only from a production point of view but from an environmental one.

9.4.5 Other Problem Areas

There are other problems faced by the Old West Region. The survey of employers indicates that both State and local taxes and government coordination are problem areas from their point of view. The survey of employers (see Appendix E) indicates that almost 2 out of 3 employers feel that inter-governmental coordination is insufficient. This attitude is particularly intense in those areas where a high potential exists for rapid industrial and population growth. Financing of growth for the Region's employers is provided primarily by parent corporations from outside the Region and from retained earnings (see Appendix E). In the former case, key decisions which influence the Region's future are not made by institutions with a self-interest in the Region. In the latter case, continued economic well-being is necessary for the Region's employers to finance future growth.

The number of physicians per capita lags the national figure by about 40 percent, and the Region's hospitals are relatively small except in urban areas (see Chapters VI and VII). The public expenditures for health and hospital care also lag the national figures (see Chapter VI, Table VI-3).

While the Region has a relatively low percentage of minority persons, the American Indian population in the Region is of significant size and is economically disadvantaged by a substantial margin (see Chapters II and III). However, the overall Region's population which is below the poverty level is approximately the same as the national figures. Moreover, the degree of the Region's poverty is not so severe as that experienced by the nation as a whole. The Region's housing (see Chapter VII) is comparable to the nation's housing condition, but growth in a localized area could cause severe housing problems because there is generally a lack of adequate vacant housing in the Region.

There are other problems which could arise or become more serious as development continues in the Region during the next ten years. These include the issues of improved management skills and labor supply for agricultural development, community and environmental enhancement to encourage tourism and manufacturing, transportation improvements in local areas affected by rapid development, business services for areas affected by rapid development, government coordination of activities in growth areas, and public attitudes regarding growth. While many of these problems are not currently evident, development may generate certain difficulties.

9.5 Interrelationships of Potentials to Problems

All problem areas are not directly linked to the areas of major potential. Figure IX-1 summarizes the major interrelationships of potentials to problems.

FIGURE IX-1
INTERRELATIONSHIPS OF POTENTIALS TO PROBLEMS

PROBLEM AREAS

<u>Potentials</u>	<u>Uncontrollable</u>			<u>No Regl. Transp. Point</u>	<u>Price Instability</u>	<u>Somewhat Controllable</u>				
	<u>Population Distribution</u>	<u>Distance From Markets</u>	<u>Cost and Avail. of Fuel and Fertilizer</u>			<u>Private Capital Financing</u>	<u>Water Supplies</u>	<u>Labor Skills</u>	<u>Public Investment</u>	<u>Environmental Impacts</u>
Agriculture			X		X	X	X		X	X
Food Processing	X	X		X		X		X	X	X
Mining Fuels								X		
Fuel Processing				X			X		X	X
Manufacturing	X	X		X				X	X	X
Other Mining								X		X
Tourism		X	X	X						X
Forestry					X				X	X

PART III

PROJECTIONS OF THE

REGIONAL ECONOMY

CHAPTER X

ECONOMIC AND POPULATION PROJECTIONS

10.1 Summary

This chapter reviews the several projections of major economic and population indicators through 1985. Projections were made for the Region, each State and the 18 sub-State areas (see Chapter I, Figure 1-1). A summary of the research approach is also provided.

An initial projection of the regional economy was made using OBERS data obtained from the Bureau of Economic Analysis, U.S. Department of Commerce. This projection was published in 1972 using 1970 and 1971 data. Therefore, the projection excludes potential energy and other major developments which now appear likely to occur in the 1975-1985 period. Adjustments were only made to account for changes in agriculture and manufacturing, and to change the base year from 1971 to 1974. This adjusted OBERS projection excludes expected energy-related developments beyond 1974. This projection indicates the following:

1. Employment ("work force" definition) in the Region would increase to 2.09 million in 1985. During the 1970-1985 period, this would amount to a growth rate of 1.7 percent per year, compared to an expected 1.6 percent per year for the nation.
2. Population in the Region would total 4.19 million in 1985. The annual growth rate in the 1970-1985 period would be 0.6 percent per year. This compares with a projected annual growth rate for the nation of 0.9 percent.
3. A net in-migration to the Region of about 20 thousand persons would occur in the 1970-1985 period. Since in-migration during 1970 through 1974 is estimated to be about 50 thousand persons, a net out-migration of 30 thousand persons would occur from 1975 through 1985.
4. Total personal income (in 1967 dollars) is projected to increase in the Region to \$20.7 billion by 1985, or at an annual rate of 3.7 percent for the 1970-1985 period. The rate of increase for the nation during this period is projected at 4.0 percent per year.

5. In 1985, per capita personal income (in 1967 dollars) would rise to a level of \$4,950 in the Region versus \$5,400 in the nation. In the 1970-1985 period the annual growth rate would be 3.1 percent for the Region and 3.0 percent for the nation. By 1985, per capita income in the Region would be 91.7 percent of the national level.

In addition, the projected changes in State and sub-State areas vary substantially with regard to employment, population and personal income. However, assuming the adjusted OBERS projection, only one of the 18 sub-State areas would have a per capita income level above the nation's in 1985.

Additional projections were made to take into account potential energy developments (and several activities of less significance) beyond 1974. Three alternative projections (i.e., expected baseline, low estimate alternative, and high estimate alternative) were made to 1985 taking into account energy development activities which could be somewhat influenced by the several States in the Region. The following are results for the expected baseline projection, or the "best estimate" of what is likely to occur assuming present national and regional conditions and trends.

1. Employment ("work force" definition) in the Region is expected to grow to 2.16 million in 1985 (or 1.9 percent annually for the 1970-1985 period). Consequently, about 70 thousand more jobs are expected in the Region as a result largely of energy-related developments. About 60 thousand of these jobs would be concentrated in four sub-State areas: Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming. These areas are expected to contain most of the future energy development.
2. Region population is expected, in this case, to reach 4.31 million in 1985 (or an increase of 0.8 percent annually for 1970-1985), or about 123 thousand persons higher than without additional energy-related developments beyond 1974. Of these, 106 thousand persons (85 percent) are expected to reside in the four sub-State areas dominating energy growth. Consequently, these four areas will have to accommodate (from net in-migration) 106 thousand more persons than what would normally be expected in 1985 (i.e., without energy-related activities beyond 1974).

3. Total personal income (in 1967 dollars) in the Region would achieve an estimated \$21.5 billion in 1985 (or a growth of 4.0 percent per year between 1970 and 1985). This is about \$0.8 billion more as a result of energy-related activities. About 86 percent of this increase would be concentrated in the above four sub-State areas.
4. Per capita personal income (in 1967 dollars) in the Region would reach \$4,980 in 1985, or less than one percent higher than without additional energy developments. Regional per capita income would be 92.2 percent of the projected national level. However, in the four sub-State areas with major energy developments the increases in per capita income are higher, rising on average about 3 percent or in absolute terms \$100 to \$200 (in 1967 dollars) per person.

Expected energy related developments between 1975 and 1985 will bring substantial increases in employment and total personal income, especially in four sub-State areas. These developments will also increase populations, and significant net in-migration will result. While per capita incomes in these four sub-State areas will be somewhat larger, per capita income in the Region and most of the sub-State areas will not be affected greatly. Only one of the 18 sub-State areas is expected to have a per capita income in excess of the projected U.S. level of \$5,400 (in 1967 dollars); and 6 of the sub-State areas are expected to be below \$4,800 (in 1967 dollars) per person.

10.2 Research Approach

The research approach used in performing the needed economic and population projections is thoroughly described in Appendix F, and is supplemented by data and procedures provided in Appendices G and H. In summary form the approach included the following set of procedures:

1. OBERS projections to 1985 of earnings (i.e., wages and salaries, other labor income, plus proprietors' income) for the 18 sub-State areas and by 10 industrial sectors were obtained from the Bureau of Economic Analysis, U.S. Department of Commerce. This formed the base for developing earnings projections.

2. Earnings multipliers were calculated to relate changes in earnings in non-basic (secondary) industrial sectors to changes in earnings in basic (export) industrial sectors. These multipliers were utilized in making various adjustments to the OBERS projections described below.
3. An employment projection procedure was devised by preparing a series of earnings to employment equations based on the historical data base (Chapter VIII). This analysis of the ratios of earnings to employment was performed for all industrial sectors and States and provided the means for converting earnings projections to employment projections.¹
4. Adjustments were made to the OBERS earnings projections (to 1985) by industrial sector to reflect conditions in the regional economy not taken into account: a) actual growth of the economy between 1970 (base year for the OBERS projections) and 1974, b) recent and expected changes in agriculture, and c) expected changes in manufacturing (based on employer questionnaires and other sources). These adjustments coupled with the OBERS projections are referred to as the adjusted OBERS baseline projection (total and by sector and sub-State area).
5. Employment projections (to 1985) in total and by sector and sub-State area were calculated from the adjusted OBERS earnings projections and from the analysis of the ratios of earnings to employment by sector.
6. Adjusted OBERS baseline projections to 1985 of earnings and employment in total and by sector and sub-State areas were increased to reflect three alternative (i.e., expected, low and high) growth paths for energy and several other major developments (see Appendix G) that could be influenced by the States in the Region but were not reflected in the OBERS projections. The energy projections took into account the expected impacts of coal mining, electrical power generation, coal gasification and other related developments.

1

These projections assume that historical linkages in the regional economy will prevail. With increased investments and developments in the Region a number of the historical linkages or trends may be broken. This problem is not expected to be large in the short run.

7. Natural increase population projections (before migration) to 1985 were developed by age and sex and by sub-State area (see Appendix H).
8. Labor or employment supply projections¹ for the natural increase population (i.e., before migration) by sub-State area were calculated to 1985 from the foregoing projections of natural increase population and from projections of employment participation ratios by age and sex.
9. Net migration (through 1985) by age and sex and by sub-State area was computed by comparing employment supply in the natural increase population with the demand for labor (based upon the several total employment projections) coupled with data on the expected age and sex distribution of employment induced migration. Projections of total population (through 1985) by age and sex for the several economic projections were determined by adding projections of net migration to the natural increase population projections.
10. Personal income to 1985 was calculated by using projections of the ratios of personal income to earnings provided for each of the sub-State areas in the OBERs data and applying these to the various earnings projections. Per capita income projections were calculated for these areas simply by dividing the various personal income projections by the appropriate population projections.

10.3 Employment, Population and Income Projections

In the several decades before 1970, the total population level in the Region was relatively static, employment rates were generally high, but job earnings were relatively low so that per capita income levels have lagged, resulting in substantial population out-migration. For example, for the approximate 3.8 billion persons in the Region in 1970, per capita income was only about 90 percent of the national average and there was a net out-migration for the 1965 to 1970 period of about 194 thousand with gross out-migration estimated at 504 thousand. Another 62 thousand persons migrated between States in the Region between 1965 and 1970. However, the regional economy has great diversity and some areas have shown substantial variation in economic and demographic trends. Also, the 1970 to 1974 period reflects some reversal in longer term trends in the regional economy. A major question concerns future economic conditions in the Region and how these conditions are expected to change at least through 1985.

¹

Including only employed persons; that is, excluding unemployed persons.

Using as the initial framework the OBERS data¹ obtained from the Bureau of Economic Analysis (BEA), U.S. Department of Commerce, Table X-1 shows regional projections of employment, population, migration and total and per capita personal income (in 1967 dollars) to 1985. These OBERS projections were made in 1972 and included national and regional economic and population data only through 1970 and 1971 (depending on the specific data element). These projections have been adjusted for regional economic change in the period 1970 through 1974, and changed expectations (i.e., more rapid growth expectations) regarding future regional agricultural and manufacturing activities (see Appendix F).

Table X-1 indicates that using the adjusted OBERS data base would result in a projected 1985 employment, using the "work force" definition, of 2.09 million. Using the "labor force" definition this would be equivalent to an employment level of 1.93 million.² This compares with a regional employment level using the "work force" definition of 1.63 million in 1970 and 1.82 million in 1974, or an annualized compound growth rate of 1.7 percent for the 1970 through 1985 period (see Table X-2). On the other hand, the national rate of employment growth during the 1970-1985 period is expected to be about 1.6 percent per year (see Table X-2), and the actual annual employment growth rate for just the 1970 through 1974 period was estimated at 2.7 percent for the Region and 2.4 percent for the nation.

The population in the Region is expected to total almost 4.19 million in 1985. Region population was about 3.80 million in 1970 and 3.96 million in 1974. Consequently, the annual population growth rate is expected to be 0.6 percent for the 1970-1985 period, whereas the actual annual increase was estimated at 1.1 percent for the 1970-1974 period. This compares with a national annual population growth rate of an expected 0.9 percent for the 1970-1985 period and an actual annual increase estimated at 1.0 percent in the 1970-1974 period. The migration implications are an expected net in-migration to the Region of just over 20 thousand persons during the 1970 through 1985 period. Given the fact that net regional in-migration during the 1970-1974 period amounted to over 50 thousand persons (see Chapter II), for the 1975 through 1985

1

Appendix F provides a detailed explanation of the procedures utilized to make the necessary projections, much of the data base, and earnings (by sector and sub-State area), population and other projections for 1980 and 1985 not shown in this summary presentation.

2

See Appendix F for further details. The "work force" definition counts total number of jobs, whereas the "labor force" definition counts only the number of people with at least one job.

Table X-1
SUMMARY OF ECONOMIC AND POPULATION CHARACTERISTICS
ADJUSTED OBERS BASELINE
OLD WEST REGION
1985

Area	Employment (in thousands)		Population (in thousands)	Net Migration (in thousands)	Personal Income (in millions of 1967 dollars)	Per Capita Personal Income (in 1967 dollars)
	1985	1985				
Old West Region	2,088.4	1,926.2	4,185.0	22.5	\$20,698.7	\$4,950
Montana	353.3	337.0	739.8	-24.3	3,549.4	4,800
Northeast	124.6	118.9	260.4	- 9.4	1,300.1	4,990
Southeast	114.3	109.4	239.0	0.8	1,115.3	4,670
West	113.9	108.7	240.4	-15.7	1,134.0	4,720
Nebraska	841.1	774.2	1,649.3	34.4	8,699.6	5,270
Central	161.4	148.5	321.7	- 7.5	1,723.7	5,360
East (Omaha)	349.2	321.4	675.8	49.9	3,636.3	5,380
Northeast	105.1	96.8	210.3	-14.7	1,063.2	5,060
Southeast	182.6	168.1	356.0	23.0	1,848.6	5,190
West (Panhandle)	42.8	39.4	85.5	-16.3	427.8	5,000
North Dakota	317.1	275.8	624.0	-59.7	2,907.1	4,660
Northeast	73.0	63.6	142.8	-17.3	686.0	4,800
Northwest	59.3	51.6	118.6	-28.1	490.1	4,130
Southeast	106.8	92.9	208.5	- 4.3	1,014.8	4,870
Southwest	78.0	67.8	154.1	-10.0	716.2	4,650
South Dakota	367.4	347.0	760.1	31.0	3,433.5	4,520
Northeast	111.7	105.6	231.9	4.9	986.4	4,250
Southeast	131.8	124.4	273.2	8.6	1,217.6	4,460
West	123.9	117.0	255.0	17.5	1,229.5	4,820
Wyoming	209.3	192.2	411.8	41.1	2,109.1	5,120
East	148.6	136.5	292.5	13.2	1,480.2	5,060
Northwest	28.7	26.3	56.8	7.5	263.1	4,630
Southwest	32.0	29.4	62.5	20.4	365.8	5,850

Source: See Appendix F.

Table X-2

SELECTED ECONOMIC AND POPULATION CHARACTERISTICS
 ANNUAL RATE OF CHANGE
 ADJUSTED OBERS BASELINE
 OLD WEST REGION AND NATION
 1970-1985
 (in percent)

Area	Employment	Population	Personal Income (in 1967 dollars)	Per Capita Personal Income (in 1967 dollars)
Region	1.7	0.6	3.7	3.1
Montana	1.6	0.4	3.4	3.0
Northeast	1.3	0.4	3.1	2.7
Southeast	1.8	0.7	3.5	2.8
West	1.8	0.1	3.7	3.6
Nebraska	1.6	0.6	3.7	3.0
Central	1.2	0.2	3.4	3.2
East	2.0	1.3	3.8	2.5
Northeast	1.2	-0.1	3.8	3.9
Southeast	1.8	0.9	3.7	2.8
West	0.3	-0.7	3.0	3.7
North Dakota	1.4	0.1	3.5	3.4
Northeast	1.2	-0.1	3.4	3.5
Northwest	0.5	-0.6	2.4	3.1
Southeast	1.6	0.4	3.6	3.2
Southwest	2.1	0.3	4.3	4.0
South Dakota	1.8	0.9	4.2	3.3
Northeast	1.4	0.6	3.7	3.1
Southeast	1.5	0.7	3.7	3.0
West	2.4	1.3	5.2	3.8
Wyoming	2.4	1.4	4.3	2.8
East	2.1	1.0	3.9	2.8
Northwest	2.0	1.5	3.4	1.9
Southwest	4.2	3.4	7.0	3.5
United States	1.6	0.9	4.0	3.0

Source: Compiled from Appendix F. National change from Bureau of Economic Analysis, U.S. Department of Commerce, historical data and OBERS projection.

period expectations would be for net out-migration of about 30 thousand persons.

Total personal income (in 1967 dollars) in the Region is expected to increase to \$20.7 billion in 1985, or about 3.7 percent per year for the period 1970 through 1985 compared with an actual growth rate estimated at 3.3 percent annually in the 1970-1974 era. On the other hand, total national personal income is expected to grow at a rate of 4.0 percent annually in the 1970-1985 period and actually increased at a rate of 3.3 percent per year during the 1970-1974 period.

Per capita personal income (in 1967 dollars) in the Region is expected to achieve a level of \$4,950 in the adjusted OBERS baseline projection. This translates into an annual growth rate of 3.1 percent versus 3.0 percent for the nation during the 1970-1985 time period. By 1985, national per capita income is expected to be \$5,400, or the Region-wide per capita income would be about 91.7 percent of the nation's.

Among the States and sub-State areas some significant variations in growth and change are apparent. For example, in the adjusted OBERS baseline projection of employment growth, between 1970 and 1985 (see Table X-2), for the States the range is an expected increase of from 1.4 percent per year in North Dakota to 2.4 percent per year in Wyoming; and for sub-State areas the range of growth is from an expected 0.3 percent annually in West Nebraska to 4.2 percent in Southwest Wyoming. In terms of population change the expectation is for a growth rate of from 0.1 percent annually in North Dakota to 1.4 percent annually in Wyoming; and among sub-State areas of from an expected decrease of 0.7 percent per year in West Nebraska to an increase of 3.4 percent per year in Southwest Wyoming. The State migration range (see Table X-1) is from an expected net out-migration of about 60 thousand between 1970 and 1985 in North Dakota, to a net in-migration of over 40 thousand in Wyoming for the same period. In terms of total personal income growth (in 1967 dollars) the expected variation among States is from an increase of 3.4 percent annually in Montana to 4.3 percent annually in Wyoming; and among sub-State areas of from 2.4 percent per year growth in Northwest North Dakota to 7.0 percent annual growth in Southwest Wyoming. Under the adjusted OBERS assumptions, per capita income (in 1967 dollars) in 1985 would achieve an expected level of from \$4,520 in South Dakota (84 percent of the U.S. level) to \$5,270 in Nebraska (98 percent of the U.S. level); and in sub-State areas the per capita income range would be from \$4,130 in Northwest North Dakota to \$5,850 in Southwest Wyoming (see Table X-1).

The expected variations among State and sub-State areas is real and very meaningful, especially in terms of those areas which will witness greater or lesser employment and income growth or population change, including substantial net in- or out-migration. Also, per capita income variation among areas remains substantial, and only one sub-State area (Southwest Wyoming) has a projected 1985 per capita income which is expected to be higher than the national level of an estimated \$5,400 (in 1967 dollars).

These projections have been made without regard for energy growth and developments in the Region beyond 1974. To answer questions on the expected economic and population impacts of such energy activities through 1985, separate projections were made in an attempt to take into account the implications of these additional developments and to be able to compare these results with the adjusted OBERS projections. Appendices F and G provide details on the procedures utilized, the data base, and the results of three alternative (i.e., expected baseline, low estimate alternative and high estimate alternative) projections taking into account energy activities (and several other developments of less significance not accounted for in the OBERS projections) which could be influenced by the several States in the Region. The results of the "expected baseline" projections are summarized in Tables X-3 and X-4. These represent a "best estimate" of what appears likely to occur assuming present national and regional conditions and trends.

Table X-3 in comparison with Table X-1 shows the size of the regional economic and population changes projected to occur through 1985 as a result of energy (and several other less significant) developments. However, these regional energy impacts are expected to be almost wholly confined to four sub-State areas in the Region: Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming. For example, Table X-3 shows an expected baseline employment ("work force" definition) projection of 2.16 million in 1985 as opposed to 2.09 for the adjusted OBERS baseline projection, or a difference of about 70 thousand jobs (over 3 percent) attributable to energy-related developments likely to occur between 1974 and 1985. However, the four sub-State areas in Montana, North Dakota and Wyoming in total would account for almost 60 thousand of these jobs, and total employment would be increased by about 16 percent.

In the expected baseline projection, population is expected to reach 4.31 million in 1985, or about 123 thousand (or about 3 percent) higher than the adjusted OBERS projection without energy developments. On the other hand, the four sub-State areas, where energy developments are expected to be concentrated, account for over 105 thousand of these 123 thousand persons. That is, of the expected increase of about 123 thousand persons due to energy-related developments, about 106 thousand of these persons (over 85 percent) would be concentrated

Table X-3

SUMMARY OF ECONOMIC AND POPULATION CHARACTERISTICS
EXPECTED BASELINE
OLD WEST REGION
1985

Area	Employment (in thousands)		Population (in thousands)	Net Migration (in thousands)	Personal Income (in millions of 1967 dollars)	Per Capita Personal Income (in 1967 dollars)
	1985	Labor Force Definition	1985	1970-1985	1985	1985
Old West Region	2,157.0	1,988.6	4,307.7	145.2	21,460.8	\$4,980
Montana	361.9	345.2	755.9	- 8.2	3,647.8	4,830
Northeast	124.6	118.9	260.4	- 9.4	1,300.1	4,990
Southeast	123.4	117.6	255.1	16.9	1,213.7	4,760
West	113.9	108.7	240.4	-15.7	1,134.0	4,720
Nebraska	845.3	778.0	1,656.8	41.9	8,750.3	5,280
Central	164.5	151.3	327.2	- 2.0	1,761.5	5,380
East	350.3	322.4	677.8	51.0	3,699.2	5,380
Northeast	105.1	96.8	210.3	-14.7	1,063.2	5,060
Southeast	182.6	168.1	356.0	23.0	1,848.6	5,190
West	42.8	39.4	85.5	-16.3	427.8	5,000
North Dakota	336.2	292.5	656.9	-26.8	3,097.5	4,720
Northeast	74.0	64.4	144.6	-15.5	694.9	4,810
Northwest	60.8	52.9	121.2	-25.5	503.0	4,150
Southeast	107.5	93.5	209.7	- 3.1	1,021.8	4,870
Southwest	93.9	81.7	181.4	17.3	877.8	4,840
South Dakota	369.7	349.1	764.2	35.1	3,463.6	4,530
Northeast	114.0	107.7	236.0	9.0	1,016.5	4,310
Southeast	131.8	124.4	273.2	8.6	1,217.6	4,460
West	123.9	117.0	255.0	17.5	1,229.5	4,820
Wyoming	243.7	223.8	473.9	103.2	2,501.6	5,280
East	171.1	157.2	333.1	53.8	1,731.9	5,200
Northwest	28.7	26.3	56.8	7.5	263.1	4,630
Southwest	43.9	40.3	84.0	41.9	506.6	6,030

Source: See Appendix F.

Table X-4

ECONOMIC AND POPULATION CHARACTERISTICS
ANNUAL RATE OF CHANGE
EXPECTED BASELINE
OLD WEST REGION AND NATION
1970-1985
(in percent)

<u>Area</u>	<u>Employment</u>	<u>Population</u>	<u>Personal Income (in 1967 dollars)</u>	<u>Per Capita Personal Income (in 1967 dollars)</u>
Region	1.9	0.8	4.0	3.2
Montana	1.8	0.5	3.6	3.0
Northeast	1.3	0.4	3.1	2.7
Southeast	2.3	1.1	4.0	2.9
West	1.8	0.1	3.7	3.6
Nebraska	1.6	0.7	3.7	3.0
Central	1.3	0.3	3.5	3.3
East	2.0	1.3	3.9	2.5
Northeast	1.2	-0.1	3.8	3.9
Southeast	1.8	0.9	3.7	2.8
West	0.3	-0.7	3.0	3.7
North Dakota	1.8	0.4	4.0	3.5
Northeast	1.3	0.1	3.5	3.5
Northwest	0.7	-0.5	2.6	3.1
Southeast	1.6	0.4	3.7	3.2
Southwest	3.4	1.4	5.7	4.3
South Dakota	1.8	0.9	4.3	3.3
Northeast	1.6	0.7	3.9	3.2
Southeast	1.5	0.7	3.7	3.0
West	2.4	1.3	5.2	3.8
Wyoming	3.4	2.4	5.5	3.0
East	3.1	1.9	5.0	3.0
Northwest	2.0	1.5	3.5	1.9
Southwest	6.4	5.4	9.3	3.7
United States	1.6	0.9	4.0	3.0

Source: See Table X-2.

in four sub-State areas. Net in-migration (between 1970 and 1985) in the four sub-State areas combined would increase from about 24 thousand to 130 thousand persons (with such developments). Since net in-migration for these four sub-State areas amounted to about 24 thousand persons between 1970 and 1974, net in-migration of about 106 thousand additional persons can be expected during the 1975-1985 period with energy-developments.

Total personal income (in 1967 dollars) in the Region is expected to achieve \$21.46 billion in the expected baseline projection, as opposed to \$20.70 billion in the adjusted OBERS baseline projection to 1985. Of the almost \$0.8 billion expected increase (amounting to a 4 percent change) in regional personal income due to energy-related developments, about 86 percent is expected to occur in the four specified sub-State areas, and total personal income in these four areas combined is projected to increase by about 18 percent. Projected 1985 personal per capita income (in 1967 dollars), on the other hand, is expected to show minor variation (less than one percent) at the regional level due to energy-related developments. The expected baseline projection shows a 1985 regional per capita personal income of \$4,980 versus \$4,950 for the adjusted OBERS baseline projection. However, at the sub-State level, the variation is as follows: Southeast Montana \$4,760 versus \$4,670 (or about 2 percent more per capita income due to energy-related developments); Southwest North Dakota \$4,840 versus \$4,650 (or about 4 percent variation); East Wyoming \$5,200 versus \$5,060 (or about 3 percent variation); and Southwest Wyoming \$6,030 versus \$5,850 (or about 3 percent difference).

Expected energy-related developments between 1975 and 1985 will bring substantial increases in employment and total personal income to the Region, but particularly to four sub-State areas. These developments will also increase populations, and significant net in-migration will occur especially in the four sub-State areas. While this will result in somewhat larger per capita incomes in the four sub-State areas in 1985, the Region and most of the sub-State areas are likely to be little affected by the energy-related developments. The 1985 per capita personal income levels of the Region and 17 of the 18 sub-State areas are expected to lag the national per capita personal income projection of \$5,400.¹ The energy-related growth, in addition to bringing about population increases requiring urban and community developments, will require increased supplies of land and water and will have an impact on the environment. Chapter XI provides a more complete analysis of expected environmental conditions in the Region through 1985. Chapter XII summarizes community development, land and water requirements of energy-related developments.

1

The Region's expected baseline projection of a per capita personal income of \$4,980 in 1985 is 92.2 percent of the expected national projection. From Table X-3, it can be seen that several of the sub-State areas (Central and East Nebraska) and the States (Nebraska and Wyoming) have a projected per capita personal income that is almost the same as, or only slightly below, the expected national level in 1985.

CHAPTER XI

ENVIRONMENTAL PROJECTIONS

11.1 Summary

Regional environmental quality is not likely to deteriorate substantially due to increased economic development through 1985. However, it is important to note that this conclusion is based on a region wide assessment and on a select number of pollutants which act as surrogates for other pollutants. Not considered in this analysis are localized environmental projections and certain toxic but less pervasive pollutants such as trace elements. The environmental impact of energy development is expected to be tightly controlled through existing Federal and State regulations. Furthermore, energy-related pollutants will be overshadowed by other sources of pollution for which there are limited control measures. The exception to this outlook is nitrogen oxides air pollution which shows a substantial rise due to a lack of current control measures and an increasing number of energy related sources of this pollutant.

Water quality in the Region is dominated by agricultural activity and natural phenomena which are subject to limited controls through soil conservation and land use practices. For the industrial and domestic/commercial activities, water pollution will be tightly controlled through Federal regulations and State permits. The combination of agricultural dominance and efficient controls on other sources of waterborne pollutants results in almost no change in calculated emissions projected between 1973 levels and 1985 levels as a result of alternative economic and energy-related projections.

Ambient regional air quality is expected to improve by 1985 with the exception of nitrogen oxides pollution. The improvement will result from tight Federal and State control measures currently in existence and required for all new point sources of air pollution, including energy-related sources. The nitrogen oxides pollution will increase in certain areas of the Region. These areas include: Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming. This increase is due largely to projected energy-related developments and the lack of existing control measures for nitrogen oxides pollution. It is difficult to provide a quantitative indication of the environmental degradation that will occur as a result of the predicted increases in nitrogen oxides emissions. To provide such an indication would require meteorological analysis of pollutant diffusion and chemical reactions to relate emissions to ambient concentrations with which to calibrate and compare results. The data sources for this type of analysis are not available. The Region is not unique in this problem. Many areas of the nation face the problem of trying to relate increasing nitrogen oxides emissions to environmental impacts. The dual questions of what should nitrogen oxides standards be and how should emissions be controlled are under intensive study by the Federal Government.

Capital and operation and maintenance costs of environmental control are presented for publicly owned waste water treatment facilities. Investments in publicly operated solid waste disposal facilities are insignificant when compared to the former and are omitted from this analysis. All other environmental control costs are borne by the

private sector. The public costs show a substantial increase in needed investments over the current value of in-place treatment facilities to meet 1983 Federal water quality goals. Approximately \$700 million will be required through 1985 for capital investments and approximately \$20 million annually for operation and maintenance of those facilities. An additional \$387 million in public capital investments is needed to correct the existing combined sewer problem that arises from stormwater overflow. Investments for treatment plants and interceptor sewers are currently covered by 75 percent Federal construction grant funds from EPA; however, the connection of combined sewers and construction of new collector sewer systems are currently not being funded by EPA. The difference in public costs between the non-energy and energy development alternatives is very slight (approximately two percent) and reflects domestic wastes resulting from population increases (largely accounted for in Chapter XII).

The investments in treatment facilities are primarily to upgrade current waste treatment practices in order to meet 1983 water quality goals. The Federal Government has established secondary treatment as a uniform treatment standard for the nation. Therefore, the public investments are the funds needed to meet this level of treatment and, secondarily, to account for increases in urban population. The \$700 million sought by the Region represents 1.5 percent of a \$47 billion National need. The construction grants program administered by EPA is currently allocating state needs from an \$18 billion fund. Therefore, the chances of the Region receiving the entire amount requested are not assured. Public investment needs for the combined sewer problems are even less assured in terms of available Federal construction grants. However, both the upgrading of treatment facilities and the elimination of combined sewers have a minor impact on the Region's water quality by comparison to agricultural and natural sources of pollution.

Further increases in environmental quality can be achieved at the option of Government policymakers. A significant reduction in water pollution would occur if control measures are adopted for nonpoint sources. Such measures are difficult to quantify since most analyses have concentrated on point sources. One study indicates that sediment load (and other pollutants) from agricultural land could be reduced nationally by approximately 50 percent at an annual cost of \$2 to \$3 per acre.¹ Soil conservation practices should be utilized throughout the Region in order to alleviate the problems of flooding, sedimentation and erosion. Soil conservation plans should include practices such as cover-cropping, terracing, strip-cropping, pasture management and minimum tillage, where appropriate; consideration should be given to the reforestation of marginal crop and pasture land.

1

Midwest Research Institute, Cost and Effectiveness of Control of Pollution from Selected Nonpoint Sources, Kansas City, Missouri, 1975.

Air pollution can be improved by limiting fugitive dust and achieving additional controls on open burning. Additional controls over coal burning industrial, residential, and commercial sources should also be effective.

11.2 Research Approach

The initial environmental analysis for the regional economic plan considered five airborne pollutants for which a National Ambient Air Quality Standard had been established by the EPA. Air pollutants considered for the 1973 base year environmental analysis included: suspended particulate matter (partic.), sulfur oxides (SOx), nitrogen oxides (NOx), hydrocarbons (HC) and carbon monoxide (CO). An analysis of photochemical oxidants was omitted because concentrations of that pollutant rarely reach excessive levels in the Old West Region. Three airborne pollutants (partic., SOx and NOx) were used for the 1985 projected changes with and without major energy developments. Hydrocarbons and carbon monoxide were not included in the future year analysis because they are not significantly affected by energy-related developments.

Three waterborne pollutants--biological oxygen demand (BOD), suspended solids (SS) and phosphorous (P) were selected for the 1973 base year analysis. Each water pollutant represented a problem area which exists on a broad scale throughout the Region (i.e., dissolved oxygen, sedimentation and turbidity, and waterborne nutrients). The measure of suspended solids was chosen in lieu of total dissolved solids (i.e., salinity) because data regarding point source discharges of total dissolved solids are not consistently available throughout the Region. In addition, it is anticipated that the short-term effects of surface mining activity will be more significant for suspended solids than for total dissolved solids. The elimination of discharges from energy-related facilities is assumed in 1985. For future year analysis, the phosphorous parameter was eliminated because the effects of relatively low industrial discharge and increasing municipal removal would show a steady decline from these sources and therefore an increasing dominance of agricultural sources similar to BOD and SS.

The choice of pollutants for this study was also based on: 1) pollutants that are widely known and used as indicators of environmental quality, 2) pollutants emitted from sources that are of interest to the economic growth and development analysis, and 3) pollutants that have a statewide or regional significance in their distribution.

The geographic areas selected for environmental analysis were the total Region, the five individual States, and five sub-State areas. The sub-State areas correspond to the geographic areas which are expected to have substantial energy-related developments, and for which detailed economic projections were performed.

The base year of 1973 was selected because it represents the most recent and most consistent source emission and ambient quality data available for the study area. Source emissions for this base year were obtained from published EPA reports and are presented in the following pollution source categories: residential, industrial, energy-related, transportation, commercial, municipal, agricultural and forestry, and other. The base year pollutant emissions for these categories are net emissions taking into consideration the removal efficiencies of pollution control measures that are currently in existence.

The 1985 projected pollutant emissions based on the adjusted OBERS without energy development beyond 1974 are calculated in two steps. First, the control measures that would be required in 1985 through Federal and State regulations are applied to the individual pollution source categories listed above. The higher control efficiencies of these future control measures result in a hypothetical reduction of net pollutant emissions for the 1973 base year. Second, these 1973 base year net pollutant emissions, by category, are multiplied by a factor equivalent to the expected growth of that category between 1973 and 1985. The result is the net pollutant emissions, with Federal and State control measures applied to the expected 1985 economic projections for the Region.

The 1985 expected baseline pollutant emissions (i.e., adjusted OBERS with energy developments beyond 1974) include substantially greater coal mining and coal electrification activities and coal gasification. The analysis assumes that these new facilities conform to Federal and State pollution control regulations.

The control measures assumed for the 1985 time period are the result of Federal and State pollution control requirements. In the case of air pollution, these controls stem from State Implementation Plans (SIP) and Air Quality Maintenance Plans (AQMP). These plans incorporate control measures designed to meet or improve National Ambient Air Quality Standards established by the Federal Government. In the case of water pollution, the controls stem from the National Pollution Discharge Elimination System (NPDES) which is a permit program established by the Federal Government to limit pollution discharges from industrial and commercial point sources. In both the air and water cases, the regulations and control measures apply only to point sources and not to nonpoint or land related sources such as soil erosion, agricultural runoff, airborne dust, etc.

A further discussion of the research approach and the supporting quantitative data are presented in Appendix I.

11.3 Pollution from Expected Growth

The relative 1985 pollutant emissions in comparison with those of the actual 1973 base year are shown in Table XI-1. This table shows the pollutant emissions for the 1985 adjusted OBERS baseline projection (i.e., adjusted OBERS without energy developments) and the 1985 expected baseline projection (i.e., adjusted OBERS with expected energy development) as a percentage of 1973 emissions. A figure of 100 percent is used for the 1973 net pollutant emissions for three air pollutants (partic., SOx and NOx) and two water pollutants (BOD and SS). The data for the five States and five sub-State areas which are expected to undergo significant energy development indicates that, in most cases, emissions in 1985 will be less than 1973 levels.

Emission levels of waterborne pollutants in the Old West Region are not expected to vary greatly between 1973 and 1985. This is because of the overwhelming influence of agricultural and forestry pollution sources which account for approximately 98 percent of the BOD and SS emissions throughout the Region. These emissions are not likely to change significantly by 1985 unless stricter soil conservation practices and land use controls are utilized in the future. Agricultural activities are not currently subject to any consistent form of State or Federal pollution control regulation. It should be noted, however, that point sources of industrial and municipal effluent can significantly impact local areas despite the fact that they makeup a relatively small percentage of total regional pollutants. For example, the effect of inadequate municipal sewage treatment (especially in periods of low flow) will be more degrading to the water quality of immediate downstream areas than the effects of diffuse nonpoint agricultural sources throughout the Region. The controls imposed on municipal and industrial sources by the Federal Water Pollution Control Act are expected to reduce 1985 emissions from those sources by 50 percent over similar 1973 source emissions. The control measures to be applied on waste water discharges from energy-related developments (i.e., mining, gasification and electrification) are expected to reduce water pollutants from these sources to zero discharge by 1985.

Table I-13 in Appendix I details the changes in waterborne pollutants between 1973 and 1985. Table I-4 in Appendix I provides a further breakdown of the energy-related pollutants in 1985 for both air and waterborne pollutants.

For the airborne pollutants, changes in emission levels between 1973 and 1985 (assuming the two projections, with and without expected energy developments) vary considerably by State and sub-State area. Although significant increases occur in partic. and SOx pollutant

Table XI-1
RELATIVE RESIDUAL EMISSIONS PROJECTIONS
OLD WEST REGION
1985
(1973 emissions = 100%)

<u>State Area</u>	<u>Adjusted OBERS Baseline</u>	<u>Expected Baseline</u>	<u>Sub-State Area</u>	<u>Adjusted OBERS Baseline</u>	<u>Expected Baseline</u>
Montana			Southeast Montana		
Particulate	55	58	Particulate	50	55
SO _x	10	12	SO _x	10	11
NO _x	81	102	NO _x	98	127
BOD	98	98			
SS	97	97			
Nebraska					
Particulate	31	34			
SO _x	49	60			
NO _x	67	95			
BOD	91	91			
SS	100	100			
North Dakota			Southwest North Dakota		
Particulate	29	38	Particulate	23	41
SO _x	34	53	SO _x	27	50
NO _x	78	156	NO _x	101	244
BOD	98	98			
SS	100	100			
South Dakota			Northeast South Dakota		
Particulate	33	35	Particulate	74	80
SO _x	58	74	SO _x	90	165
NO _x	44	65	NO _x	37	108
BOD	99	99			
SS	98	98			
Wyoming			Southwest Wyoming		
Particulate	52	79	Particulate	49	85
SO _x	29	62	SO _x	30	101
NO _x	83	191	NO _x	151	360
BOD	99	99			
SS	98	98	East Wyoming		
			Particulate	52	73
			SO _x	28	45
			NO _x	79	134

Source: Calculated from data supplied by Office of Water Program Operations, 1974 Needs Survey, EPA, Washington, D.C., 1975; National Bureau of Economic Research, "Table of Water Effluent Discharges by SIC", 1975; Hittman Associates; Environmental Impact, Efficiency, and Cost of Energy Supply and End Use, Council on Environmental Quality, 1974; The Economics of Clean Water-1973, EPA, Washington, D.C., 1973; The Cost of a Clean Environment-1975, EPA, Washington, D.C., 1975; Economic Analysis of Effluent Guidelines, Steam Electric Power Plants, EPA, Washington, D.C., 1974; State and County Emissions Reports, National Emissions Data System, EPA, Research Triangle Park, N.C., 1975; Office of Planning and Evaluation, The Cost of Clean Air, EPA, Washington, D.C., 1973.

generation between the adjusted OBERS and expected baseline projection in 1985, the 1985 emission levels are still below the 1973 levels. However, this is not the case with NOx emissions. This pollutant, which results from high temperature combustion of fossil fuels, experiences a sharp increase over 1973 levels in the 1985 expected baseline projection. This increase between 1973 and 1985 ranges up to 260 percent in Southwest Wyoming. The NOx increases are due to relatively low control on both existing sources which will grow between 1973 and 1985 and large new energy-related emissions. More effective regional NOx controls will become desirable for energy-related sources which will account for approximately 60 percent of the NOx emissions in the 1985 expected baseline projection. However, there is a lack of NOx control technology. Current stationary NOx abatement technology does not provide for more efficient controls than those assumed in this analysis. Changes in transportation source controls, currently being considered in Congress, may cause significant changes in mobile source NOx emissions, particularly in more urbanized areas. Transportation sources will account for over 10 percent of the NOx emissions in the 1985 expected baseline projection.

This significance of the NOx pollution discussed above is highlighted by source category in Table XI-2. This table summarizes the increase in airborne pollutant emissions between 1973 and the two baseline projections to 1985.

Unfortunately, the 1985 increases in NOx emissions above the 1973 base year cannot be related to increases in ambient air quality levels. Historical measurements of ambient NOx levels are very scarce. Only a few of the urban areas were measured for this pollutant during 1973 and the increase in NOx is not expected in urban areas. Furthermore, an analysis of future ambient NOx levels would require detailed local and regional meteorological models which account for the diffusion and chemical reactions of the emitted NOx. Such models are not available for this study. However, the implications to be drawn from the emission data are that ambient NOx levels will increase significantly unless control measures are made available and their use required on all new sources.

In addition to the NOx problem highlighted in Table XI-1, the data also show a marked increase in SOx emissions (over 1973 levels) for Northeast South Dakota. This sub-State area was included to illustrate NOx increases due to power plant installations. However, the NOx increase was much less dramatic than the apparent SOx increase which is also a function of power plant development. Most other areas in the Region have controllable SOx emissions which will experience significant reduction by 1985 due to stringent control measures applied by State Implementation Plans. In this area however, the previous lack of sources

Table XI-2

CURRENT AND FUTURE AIR RESIDUALS
OLD WEST REGION
1973 AND 1985
(in tons)

Residual Source	1973			1985 ¹					
	Current Control		NOx	Adjusted OBERS Baseline		NOx	Expected Baseline		
	Partic.	SOx		Partic.	SOx		Partic.	SOx	NOx
Industry	451,091	893,472	135,610	167,044	94,091	146,541	186,738	100,842	161,708
Residential	5,761	11,604	8,247	7,052	12,098	9,196	7,332	12,475	9,482
Transportation	31,479	22,487	310,205	38,637	27,520	84,338	40,323	29,124	88,276
Energy-Related	94,204	170,832	133,065	16,159	45,882	192,469	42,459	99,782	458,269
Commercial	5,064	9,079	12,145	1,144	2,235	6,817	1,165	2,211	2,082
Other	99,684	978	19,512	84,739	982	18,396	84,739	972	19,396
Total	689,283	1,108,452	618,784	314,775	183,808	457,767	362,756	245,406	744,213

¹ National average of State Implementation Plans

Source: Calculated from State and County Emissions Reports, National Emissions Data System, EPA, Research Triangle Park, N.C., 1975; Office of Planning and Evaluation, The Cost of Clean Air, EPA, Washington, D.C. 1973.

of SO_x emissions characterize the area and the introduction of a major power plant results in a significant increase in SO_x.

There are probably similar situations in other parts of the Region which would surface only upon more detailed investigation of local conditions. The emphasis in this review and analysis was on regional rather than local impacts.

11.4 Public Costs

Public environmental control costs arise from investments in sewage treatment facilities and in publicly operated solid waste disposal facilities. The solid waste disposal costs are insignificant in comparison to sewage treatment costs and have therefore been omitted from this report. The investments in sewage treatment facilities include the treatment plant, the interceptors and the sewer trunk lines (i.e., collector system). The investments are generally considered to be of two types: the initial capital investment in physical facilities and the annual operation and maintenance costs. Table XI-3 shows the public costs for sewage treatment as estimated by a model developed by EPA to evaluate the State submittals in the "1974 Needs Survey" by EPA. These needs represent the share eligible for grant requests for the construction of treatment facilities. The \$1,433.1 million (in 1973 dollars) represents the replacement value of in-place capital investments that have been made to 1973. Meeting 1983 Federal Standards, population increases, and industrial/commercial increases by 1985, account for an additional need of \$694.6 million in investments for the adjusted OBERS baseline projection and an additional need of \$710.6 million for the expected baseline projection. Similar increases are shown for annual operations and maintenance costs.

Apart from the waste treatment facilities needs shown above, an estimate was also made by three of the five States in the Region for Federal grants to correct combined sewer overflow problems. This estimate based on the "1974 Needs Survey", calls for an investment of \$386.6 million for capital facilities and \$10.3 million for annual operations and maintenance costs (in 1973 dollars). This is a one-time investment need to correct an existing problem and is independent of future growth in the Region. Appendix I shows a breakdown of the combined sewer needs by States.

The largest part of the public cost of environmental control is to upgrade publicly owned waste water treatment facilities throughout the Region in order to meet the 1983 Federal Standards to accommodate the 1985 adjusted OBERS baseline projection of population. The incremental cost of providing for the additional population in the 1985 expected baseline projection is approximately 2 percent in capital costs and 3 percent in annual operation and maintenance costs. The incremental capital cost is largely taken into account in the community facilities analysis provided in Chapter XII.

Table XI-3
PUBLIC COSTS FOR SEWAGE TREATMENT
OLD WEST REGION
1973-1985
(in millions of 1973 dollars)

<u>Expenditure Type</u>	<u>1973 Current Control</u>	<u>1985</u>	
		<u>Adjusted OBERS Baseline</u>	<u>Expected Baseline</u>
Capital Cost	1,433.1	694.6	710.6
Operation and Maintenance Cost	29.7	18.9	19.5

Source: See Appendix I, Table I-13.

All industrial pollution control costs are borne privately, including those costs associated with pretreatment of industrial waste waters that flow into public waste treatment facilities.

It is expected that most resistance to private expenditures for environmental controls will be related to older industrial facilities since control costs may require a significant investment relative to the remaining life of the overall facility. However, the analysis indicates that existing sources will have to be controlled in order to assure that future pollution generation does not exceed the 1973 level. Because of their relatively large size, new energy-related facilities will be subject to extremely stringent controls. For example, power plants will require highly efficient particulate control, sulfur oxide scrubbers, cooling towers and flow-down water ponds. The elimination of sulfur oxide scrubbers from one new 1,000 megawatt plant would increase SO_x emissions from 5,000 to 50,000 tons per year; a significant increase in most areas relative to the base emissions.

CHAPTER XII

PROJECTED COMMUNITY FACILITY,
LAND AND WATER REQUIREMENTS OF
ENERGY-RELATED ACTIVITIES

12.1 Summary

This chapter projects the requirements for community facilities, land and water to satisfy the additional energy-related developments expected to occur between 1975 and 1985.

Due largely to new energy-related developments, four sub-State areas in the Region (Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming) will need to absorb an estimated additional 106 thousand persons between 1975 and 1985, beyond what could be expected without these developments (i.e., the difference between "expected baseline" and "adjusted OBERS" population projections). The public capital cost to provide needed community facilities for these persons is estimated at \$245 million (in 1973 dollars). This assumes the development of new or expanded communities. If unplanned sprawl is allowed to occur these public costs could reach \$360 million (in 1973 dollars). Private investment costs, in either case, are estimated to be over \$1.3 billion (in 1973 dollars) to accommodate these additional persons. This includes the cost of housing and assumes all housing is privately financed.

For coal strip mining, coal-fed power and gasification plants, and community facilities, additional land requirements in the Region are estimated at 65 thousand acres between 1975 and 1985. This would probably result in only a limited impact on agricultural output. In 1985, the livestock and grain losses as a result of land requirements would amount to an estimated \$600 thousand (in 1972 prices and production levels). On the other hand, this determination of land requirements assumes careful, planned rehabilitation of strip mined lands in the Region. Estimates are that such rehabilitation will require 5 to 10 years, and it is assumed that rehabilitation costs and other requirements would be placed on the private coal mining firms. The rehabilitation costs of strip-mining during the 1975-1985 period are estimated at \$51 million (in 1973 dollars).

Additional annual water requirements for energy-related developments in the 1975-1985 period are estimated at 299 thousand acre-feet. It is expected that coal mining and any slurry pipeline companies will rely on privately financed ground water supplies (some mines may build impoundments to catch surface runoff), and new or expanding communities will obtain their water needs from ground water sources (costs accounted for in the above community development summary). The remaining surface water requirements (210 thousand acre-feet per year) could be provided via a publicly or privately financed transport system, requiring an estimated investment of about \$210 million (in 1973 prices). It appears that sufficient surplus surface waters are available in the Region's reservoirs to meet expected needs at least through 1985.

The foregoing indicates that land and water resources needed to meet expected energy-related requirements between 1975 and 1985 are significant, but are not extremely high in comparison with their total availability. On the other hand, it should be underscored that the period under review is only 10 years. Once committed to a growth path the long-term (to the year 2000 and after) resource requirements may be enormous. Consequently, continuous review and analysis of resources and other requirements and actions associated with all regional developments are essential.

12.2 Community Facilities Requirements

Chapter X indicated that major population expansions would occur in four sub-State areas as a result of energy-related developments: Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming.

The "adjusted OBERS baseline" projection provides an estimate of the Region's population level in 1985 without additional energy-related activities occurring beyond 1974. Based on historic trends it is expected that these populations can be absorbed relatively easily, that is without serious disruptions. On the other hand, the "expected baseline" projection which includes energy developments reflects a need to absorb by 1985 about 106 thousand additional persons (above and beyond that projected using the adjusted OBERS data) in the four sub-State areas.

Table XII-1 indicates the approximate 1) distribution of these added populations among regional sub-State areas and 2) the public capital costs of providing for these populations in new community or expanded community facilities. Complete details of this analysis are presented in Appendix J. Table XII-1 indicates that an estimated \$245 million (in 1973 dollars) would be required between 1975 and 1985 for new public community or expanded community facilities to provide for these additional 106 thousand persons. This cost estimation is based on the development of planned communities. If unplanned sprawl is allowed to occur (see Appendix J), the public capital costs for community development are estimated to be about \$360 million (in 1973 dollars) to provide for these approximate 106 thousand persons during the 1975-1985 period.

In planned communities public capital costs would be distributed among various facilities in the following proportions: schools-60 percent; utilities (sewer, water)-13 percent; streets and roads-9 percent; hospitals-8 percent; police and fire- 4 percent; land-3 percent; open space-2 percent; and solid waste-less than 1 percent. For unplanned communities, the cost proportions shift largely as a result of the much greater capital cost requirements for streets and roads and utilities (see Appendix J). In addition to these public capital costs, private investment costs for either planned or unplanned communities are estimated to amount to over \$1.3 billion (see Appendix J) for providing for these additional 106 thousand persons.

Table XII-1

PROJECTED POPULATION INCREASES AND PUBLIC
COMMUNITY CAPITAL COSTS OF ACCOMMODATION
IN SUB-STATE AREAS WITH MAJOR ENERGY DEVELOPMENTS
OLD WEST REGION
1975-1985

<u>Area</u>	<u>Expected Population Increases¹ (in thousands of persons)</u>	<u>Public Community Capital Costs of Accommodation (in millions of 1973 dollars)</u>
Montana Southeast	16	37
North Dakota Southwest	27	62
Wyoming East	41	95
Southwest	22	51
Total	106	245

¹ Represents the difference between the "adjusted OBERS" projection and the "expected baseline" projection to 1985. The latter includes the "best estimate" of projected energy-related developments, which are not accounted for in the OBERS projection (see Appendix J).

12.3 Land Requirements

Land requirements for projected (1975-1985) coal associated developments are summarized in Table XII-2. These requirements are shown for the expected baseline projection of coal associated developments and take into account land needs for: 1) coal strip mining; 2) coal-fed power and gasification plants and 3) communities to provide for the increased populations shown in Table XII-1. A more complete analysis and further details on procedures followed in estimating land requirements are shown in Appendix K.

Table XII-2 indicates that about 65 thousand acres of land (about 54 percent for strip mining, 17 percent for power and gasification plants, and 29 percent for community facilities) would be required for these developments during the 1975-1985 period. This assumes careful, planned rehabilitation of strip-mined lands in the Region. However, land requirements for strip-mining will remain relatively high, since it is expected that land rehabilitation will require about 5 to 10 years. Table XII-2 summarizes the estimated costs associated with land rehabilitation. For the projected expected baseline production levels, this cost is estimated at \$51 million (in 1973 dollars) for the 1975-1985 period. It is assumed that these costs would be absorbed by the private sector.

The impact of displaced land on agricultural production in the Region is also documented in Appendix K (see Table K-5). Using the land requirements shown above, the 1985 loss in agricultural production is valued at about \$600 thousand (in 1972 prices and production levels). In 1973, agricultural production in the Region was valued at 8.7 billion.

12.4 Water Requirements

Similar to the analysis of land requirements, additional water requirements have been estimated taking into account needs for: 1) coal mining, including land rehabilitation; 2) coal-fed power and coal gasification plants; 3) coal slurry pipelines; and 4) communities to provide for increased populations as shown in Table XII-1. Complete details on this analysis, and additional projections, can be found in Appendix L.

Table XII-3 shows that the additional (i.e., cumulative between 1975 and 1985) annual water requirements to meet the foregoing kinds of needs amount to an estimated 299 thousand acre-feet in 1985, assuming the expected baseline projection for energy development. Also assuming that 1) new or expanded communities will obtain all of their water needs from ground water supplies (costs accounted for in Table XII-1), 2) coal mining and slurry pipeline companies will rely on privately financed ground water supplies,¹ 3) coal-fed power and gasification plants would

1

Coal mining companies may in some cases build impoundments to catch surface runoff.

Table XII-2

LAND REQUIREMENTS FOR COAL ASSOCIATED DEVELOPMENTS
AND COST FOR STRIP-MINING REHABILITATION
OLD WEST REGION
1975-1985

<u>Area</u>	<u>Land Requirements for¹ Coal Associated Developments (in thousands of acres)</u>	<u>Cost of Rehabilitating¹ Strip-Mined Lands (in millions of 1973 dollars)</u>
Montana Southeast	14.4	14.9
Nebraska Central	1.2	no coal mining in area
East	0.6	no coal mining in area
North Dakota Southwest	14.5	8.8
South Dakota Northeast	0.4	no coal mining in area
Wyoming East	24.1	21.9
Southwest	10.1	5.5
Total	65.3	51.1

¹ Based on expected baseline projection of coal-related developments (see Appendix K).

Table XII-3

ADDITIONAL VOLUME AND CAPITAL COST OF WATER
FOR COAL ASSOCIATED DEVELOPMENTS
OLD WEST REGION
1975-1985

Area	Additional Water Requirements ¹ (in thousands of acre-feet per year)		Public Capital Cost Requirements (in millions of 1973 dollars)
	Total	Surface Water Only	
Montana			
Southeast	42.1	27.2	27.2
Nebraska			
Central	24.0	24.0	24.0
East	12.0	12.0	12.0
North Dakota			
Southwest	82.5	67.2	67.2
South Dakota			
Northeast	8.8	8.8	8.8
Wyoming			
East	73.9	24.0	24.0
Southwest	55.9	46.6	46.6
Total	299.2	209.8	209.8

¹ Based on expected baseline projection of coal-related developments
Appendix L).

² To be needed only for provision of surface waters. Ground water privately
financed or accounted for in Table XII-1.

obtain water from surface supplies, 4) surface waters would be transported in aqueducts from existing sources of supply, and 5) the capital cost to transport water and meet water needs is about \$1,000 per acre-foot (in 1973 dollars), then the investment requirements (between 1975 and 1985) would amount to about \$210 million (in 1973 prices, see Table XII-3) to meet additional surface water requirements. The building and financing of these aqueducts and related facilities could potentially be performed by public or private entities. Based on data shown in the Northern Great Plains Resource Program study (also see Table L-6 in Appendix L) and Chapter IV, it appears that sufficient surplus surface waters are available in the Region's reservoirs to meet water requirements at least through 1985, and that the capital cost of water movements would be about \$1,000 per acre-foot.

PART IV

PROPOSED REGIONAL POLICY PLAN

CHAPTER XIII

REGIONAL GOALS AND IMPLEMENTATION STRATEGY

13.1 Summary

Based upon previous analyses and projections of the regional economy, this chapter presents the Old West Regional Commission's objectives and goals. A public program and policy strategy is also proposed to achieve the stated objectives and goals.

The overall objective of the Old West Regional Commission is to improve the general quality of human existence in the Region. This objective has several dimensions, including economic, environmental, social and other aspects. The specific goals of the Old West Regional Commission are:

1. To increase per capita personal incomes in the 18 sub-State areas of the Region to about \$4,800 (in 1967 dollars) for the non-Indian population in 1985. This translates into a personal income increase of \$280 per capita in five projected deficit sub-State areas.
2. To increase per capita personal income among American Indian peoples in the Region by about \$350 (in 1967 dollars) above the expected 1985 level.
3. To prevent serious potential dislocations or disruptions from occurring in the regional economy as a result of rapid energy-related developments.
4. To achieve the environmental quality implied in the Federal and State regulations for air and water pollution, and to maintain high quality areas.
5. To improve health services, especially in the more rural parts of the Region.
6. To provide for increased citizen participation in the governmental decision-making process and to provide a forum for discussing regional issues.

To achieve these goals, estimates of public and private investment and other costs have been determined and a program implementation strategy was designed to take advantage of existing regional potentials and to resolve existing and future potential problems. In summary, to achieve Old West Region goals, a public expenditure program is proposed approximating \$1.04 billion (in 1975 dollars) for the 1975-1985 period, or about \$104 million per year. These monies would be above and beyond current expected public expenditures for the Region.

Of these public funds, about 80 percent would be provided by Federal sources and 20 percent from State and local sources; however, 100 percent Federal funding is proposed for Indian areas and for the technical,

planning and demonstration assistance program. On the Federal side, it is also proposed that special legislation be considered to furnish additional monies to specific agencies with program implementation responsibilities. Monies would be earmarked for use only in the Old West Region, and would be provided to specific programs or projects through existing categorical grant-in-aid, revenue sharing, block-grant or other mechanisms, whichever is appropriate to the utilization of Federal agency funds for a particular activity. Where no Federal mechanism or program exists to fund a particular activity, it is assumed that the Old West Regional Commission would be the source of Federal monies. In addition, the Commission would be a source of supplemental grant-in-aid financing of up to 80 percent of project cost.

Estimates of proposed public funding levels to achieve various regional goals, along with very preliminary estimates of funding levels by program category, are as follows:

<u>Proposed Public Assistance Activity</u>	<u>Preliminary 1975-1985 Funding Level</u> <u>(in millions of 1975 dollars)</u>	
For Per Capita Income Growth		
Investment Assistance		
Agricultural Facilities	\$ 75	
Industrial/Manufacturing Facilities	100	
Tourism/Recreation Facilities	25	
Business Loan Program	100	
Educational Facilities	100	
Transportation Facilities	50	
Other Facilities	60	
	Subtotal	\$510
Employment Services Assistance		
Manpower Training	\$ 100	
Other Employment Services	30	
	Subtotal	\$130
Related to Energy Development		
Investment Assistance		
Community Facilities	\$ 290	
	Subtotal	\$290
Technical, Planning and Demonstration Assistance		
Environmental Activities	\$ 30	
Health Service Activities	50	
Other Activities	30	
	Subtotal	\$110
	Total	\$1,040

13.2 Objectives and Goals

Projections of expected economic conditions in 1985 have been presented for the Old West Region, for each State, and for 18 sub-State areas covering the entire Region and defined specially for this study (see Chapter I, Figure I-1). The results indicate that even when accounting for expected energy-related developments, the Region-wide per capita personal income level is likely to lag the national average. Also, consistent with historical trends, per capita personal income levels within certain of the 18 sub-State areas are expected to be substantially lower than the Region average. Those sub-State areas with the lowest per capita incomes are likely to participate little or not at all in expected energy developments.

Important, though, is the quality of life generally exhibited in the Region. The environment is relatively clean, and likely to remain so, at least for the next decade. There is an attachment to the rural plains and mountains, and to the more independent and hardy way-of-life considered to be a part of this rural setting. The availability of health services in many rural areas may be limited, but educational attainment levels are generally very high, great mobility is displayed by the labor force, and there is a willingness to work earlier and later in life and in more than one job in order to increase earnings.

These regional statistical reviews, projections, resource surveys and other analyses, however, generally obscure the fact that the most serious economic problems in the Region exist among American Indians. No studies or projections are available which specifically focus on Indian people in the Region. However, in 1969/1970 (see Chapter III), Census data indicate that the per capita personal income level was about 25 percent of the national level, the unemployment rate was nearly four times the national rate, and the employment participation rate was 40 percent below the national rate. There is little reason to believe that the economic conditions generally among American Indians in the Region will be much improved by 1985. However, several of the Indian tribes located in areas with mineral resources may be able to better their economic position between now and 1985.

The overall objective of the Old West Regional Commission is to improve the general quality of human existence in the Region. This objective has several dimensions, including economic, environmental, social and other aspects. Based on the earlier projections and other analyses, the specific goals of the Old West Regional Commission are:

1. To increase per capita personal incomes in the 18 sub-State areas of the Region to about \$4,800 (in 1967 dollars) for the non-Indian population in 1985. This translates into a personal income increase of \$280 per capita in five projected deficit sub-State areas. This goal would result in the achievement of an average 1985 per capita personal income level in all

sub-State areas of the Region that is nearly 90 percent of the expected national average. Parity with the national per capita personal income level is not sought. For the Region, other existing quality of life factors are important, as long as per capita income levels are reasonable in comparison with the nation. In addition, this goal is not intended to preclude the inclusion of other low income localities (e.g., a county or multi-county area) throughout the Region from participating in future program activities. Further analysis and study of local conditions will isolate other economic problems to be resolved. Also, the intent (see Section 13.4) is to provide improved income producing opportunities throughout the Region, not only in low income areas, and then to link low paid or unemployed workers to these opportunities.

2. To increase per capita personal income among American Indian peoples in the Region by about \$350 (in 1967 dollars) above the expected 1985 level. Economic problems are especially severe in Indian areas. A direct approach is required to solve such difficulties and at the same time to strengthen the economic self-sufficiency of tribal groups. A \$350 (1967 dollars) increase in per capita income of Indian peoples by 1985 would begin to close the income gap among the Region's Indian population. The longer term goal of the Old West Regional Commission is for Indian people to achieve parity with per capita personal income levels in the Region.
3. To prevent serious potential dislocations or disruptions from occurring in the regional economy as a result of rapid energy-related developments. The intent is to foresee, plan, and assure that economic and social disparities are minimized and needed community, water conveyance, and other major public facilities are provided in order to preserve the quality of life of local communities.
4. To achieve the environmental quality implied in the Federal and State regulations for air and water pollution, and to maintain high quality areas. By law, certain air and water pollution conditions in the Region are to be controlled by 1985, resulting in expected improvements to the environment. Regionwide enforcement of standards is essential to an improved environment. Continuous review of existing standards, especially in high quality areas, is also necessary to assess their

adequacy. Equally important is the study and review of pollution problems where no standards exist. For example, the preparation, application and enforcement of standards and "best management practices" to land-related non-point sources (not currently covered by pollution control regulations) are needed because of their overwhelming contribution to regional pollution. Satisfactory land reclamation of strip-mined land is also essential to prevent degradation of the physical environment. Finally, it is important to continually strive for more and better data with which to analyze the environmental conditions and refine pollution measures.

5. To improve health services, especially in the more rural parts of the Region. Data analyses have shown the lack of physicians in the Region and the low level of public funding for health facilities and hospitals. Sparse population distributions and low income levels have been responsible for such conditions. Programs are needed to improve health delivery services in the Region.
6. To provide for increased citizen participation in the governmental decision-making process and to provide a forum for discussing regional issues. Regional planning will benefit from greater citizen participation in the goal-setting process and in the selecting of programs and projects to fulfill these goals. In addition, by providing a forum for discussing economic, environmental, social or other issues, a process will have been initiated for seeking regional responses to issues and regional solutions to particular problems.

13.3 Analysis of Public Costs

To increase the per capita personal incomes above the expected 1985 level will require additional public and private capital in the Region above expected 1985 levels. This capital is needed to increase personal income either by increasing labor productivity (i.e., raising average earnings per worker) or increasing employment levels. The latter would be satisfactory in areas like Indian reservations where employment participation levels are relatively low. But in other areas, employment "up-grading" (i.e., increasing the average earnings of workers) would be most suitable so as to avoid regional in-migration that could result from increasing the number of jobs. On the other hand, there may also be opportunities to increase employment participation rates to even higher levels (e.g., among female workers) in the existing population so as to increase per capita incomes without affecting regional population and migration.

Table XIII-1 provides an estimate of the total additional personal income requirements needed to raise the per capita personal incomes of non-Indians in all 18 sub-State areas to about \$4,800 (in 1967 dollars) by 1985. Table XIII-1 indicates that after disaggregating the Indian population from the non-Indian population, it is expected that 5 of the 18 sub-State areas will have per capita personal income levels of less than \$4,800 (in

TABLE XIII-1

TOTAL NON-INDIAN PERSONAL INCOME REQUIREMENTS
SUB-STATE AREAS LESS THAN \$4,800 (1967 dollars) PER CAPITA
OLD WEST REGION
1985

Area	Per Capita Personal Income (in 1967 dollars)		Estimated ² Non-Indian Population (in thousands)	Total Non-Indian Personal Income to Achieve \$4,800 (in millions of 1967 dollars)
	Of Total Population ¹	Of Non-Indian Population ²		
Montana				
Southeast	4,760	4,900	245.5	0
West	4,720	4,780	236.3	4.7
North Dakota				
Northwest	4,150	4,240	117.7	65.9
South Dakota				
Northeast	4,310	4,360	231.9	102.0
Southeast	4,460	4,510	269.1	78.0
Wyoming				
Northwest	4,630	4,630	56.8	9.7
Average ³	4,520	4,520 ⁴	Total 911.84	260.3

¹ From Table X-3.

² Assumes Indian population growth of from about 68 thousand in 1960 and 85 thousand in 1970 to 110 thousand in 1985, allocated in following proportion (similar to 1970): 8.75 percent in Southeast Montana; 3.75 percent in each of West Montana, and Northeast and Southeast South Dakota; 2.5 percent in Northwest North Dakota; and 0 percent in Northwest Wyoming. Non-Indian population determined by subtracting Indian populations from total population as shown in Table X-3. Per capita income level calculated assuming Indian per capita personal incomes averaging \$1,350 (in 1967 dollars), or about 25 percent of the expected national level.

³ Average of the populations residing in all areas cited.

⁴ Excludes Southeast Montana.

1967 dollars) in 1985. To raise these 5 sub-State areas (West Montana, Northwest North Dakota, Northeast and Southeast South Dakota, and Northwest Wyoming) to \$4,800 per capita (or an average increase of \$280, in 1967 dollars, per person in these areas) by 1985, total personal income needs are estimated at about \$260 million (in 1967 dollars). In addition it is estimated that in 1985 the Region's Indian population will number about 110 thousand and that per capita personal incomes will remain at about 25 percent of the national level, or at \$1,350 (in 1967 dollars). An increase of \$350 (1967 dollars) per person amounts to a per capita annual increase of 5.3 percent in personal income among Indian peoples between 1975 and 1985, and compares with a projected 3.2 percent annual increase for the non-Indian population in the Region. Total personal income requirements to raise Indian per capita incomes in the Region by \$350 are estimated at about \$38.5 million (in 1967 dollars). Table XIII-2 indicates that to raise non-Indian and Indian annual personal incomes by the amount desired by 1985 (i.e., almost \$300 million in 1967 dollars, and over \$450 million in 1975 dollars), would require an estimated additional (above what is expected) public and private investment of about \$1.8 billion (in 1975 dollars).¹ Public funds to meet investment requirements are placed at just over \$0.5 billion. This assumes that 25 percent is financed by public sources generally in the Region (consistent with historical data as shown in Appendix M) and 50 percent is publicly financed in the capital and financially poor Indian areas.

Additional monies for manpower training exist beyond investment requirements. Such training is essential for the employment of under-employed or unemployed local populations and job up-grading. Assuming the need to train and up-grade about 5 thousand regional workers per year at \$2,000 each (for teachers, materials, etc.), the cost would be about \$10 million per year.² In addition, special regional employee relocation, employment information and other (non-capital) employment services programs are expected to cost another \$3 million per year.

Chapter XII has reviewed some of the capital cost requirements for avoiding potential dislocations in the Regional economy between 1975 and 1985 as a result of rapid energy-related developments. Estimates of public capital costs were presented to meet community facility needs to take into account increased production, employment and population as a result of expected energy-related developments. These activities represent a

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This assumes application of a regional "incremental capital output ratio" and its related "incremental capital earnings ratio" (see Appendix M). To the degree that such potential investments are made in Indian areas, the implied capital efficiencies are likely to be substantially diminished.

2

The estimate of \$2,000 per enrollee is based on data obtained from Cost-Effectiveness Evaluation of the Concentrated Employment Program, prepared by System Development Corporation for the Manpower Administration, 1973.

TABLE XIII-2

CAPITAL REQUIREMENTS TO
INCREASE PER CAPITA PERSONAL INCOMES
OLD WEST REGION
1975-1985

	Personal Income Requirements (millions of 1967 dollars) ¹	(millions of 1975 dollars) ²	Earnings Requirements ³ (millions of 1975 dollars)	Total Capital Requirements ⁴ (millions of 1975 dollars)	Public Funds for Investment ⁵ (millions of 1975 dollars)
Sub-State Areas	260.3 ¹	395.7	302.1	1,571	392
Indian Areas	38.5	58.5	44.7	232	116
Total	298.8	454.2	346.8	1,803	508

¹ From Table XIII-1.

² Price deflator for personal consumption expenditures: 1967 = 100.00, 1975 (Second Quarter) = 65.78, Bureau of Economic Analysis (BEA), U.S. Department of Commerce.

³ Based on earnings to personal income ratios for Old West Region obtained from BEA.

⁴ From Appendix M, Table M-2. This analysis indicates a regional "incremental capital earnings ratio" of 5.2.

⁵ Assumes 50 percent funded by public sources in Indian areas, and 25 percent funded by public sources elsewhere as consistent with historical capital allocations (see Table M-3, Appendix M).

break in historical trends, and these proposed public investments provide an estimate of the "front-end" or advance capital requirements for preventing inefficiencies from occurring in the economy, and for protecting the health and welfare of impacted populations. Such capital requirements are needed to begin meeting immediate demands for local facilities. Table XIII-3 summarizes the public capital costs for projected community facilities associated with energy developments during the 1975-1985 period. These costs amount to about \$0.29 billion (in 1975 dollars), without considering other potential public assistance for housing or additional programs that the Commission may desire to participate in at a later date.¹

To assist State and local (including tribal) agencies to 1) review and enforce existing and future environmental laws and standards; 2) determine the need for, and prepare and apply, additional laws, standards or management practices; and 3) assure satisfactory land reclamation and other land use activities, the Commission proposes to provide \$3 million per year in funds to these agencies. It is anticipated that such monies would be provided in the form of technical assistance, planning and demonstration project grants.

In the health area, little information is available for setting reasonable goals to be met by 1985 or for establishing the costs to achieve such goals. The health area is one which will be studied more intensively by the Commission to formulate specific programs and projects needed to improve rural health services. The strategy section (see Section 13.4), however, begins to address health needs, and the Commission intends to establish a health technical assistance, planning and demonstration program to be funded at about a \$5 million per year level.

Monies for increasing citizen participation in the regional planning process and for providing a forum for review and discussion of regional issues would be provided from Commission technical, planning, and demonstration assistance funds. Additional technical assistance and planning monies would be used for socio-economic research, assessing local program and project needs, evaluation of regional program impacts, and other activities.

¹

Not included in this public cost analysis are expected needed investments in water conveyance facilities. The needed investments for the 1975-1985 period are estimated at \$210 million in 1973 prices (see Appendix L), or about \$248 million in 1975 prices. These are excluded here since it is unknown whether such facilities would be developed by public and/or private entities. Consequently, total public investment needs may be underestimated.

TABLE XIII-3

PUBLIC CAPITAL COSTS
FOR ENERGY-RELATED COMMUNITY DEVELOPMENTS
OLD WEST REGION
1975-1985

	<u>Community Facility Public Capital Costs</u>
Millions of 1973 dollars	245 ¹
Millions of 1975 dollars	290 ²

¹ From Table XII-1.

² Based on construction cost inflators from Engineering News Record:
1913 = 100.0; 1973 (Aug.) = 1923.2; and 1975 (Aug.) = 2274.8.

A summary of public costs to meet the various objectives and goals is provided in Table XIII-4. In total, additional public costs amounting to about \$1.04 billion (in 1975 dollars) are required between 1975 and 1985, or about \$104 million annually.

13.4 Implementation Strategy

To achieve the Old West Region goals associated with increasing per capita incomes (i.e., Goal One and Goal Two), emphasis would be placed on 1) up-grading existing jobs in the Region and achieving higher labor productivity, 2) attracting new or expanding existing industries with relatively high employee productivity rates, and 3) increasing employment opportunities, especially in areas with low employment participation ratios (e.g., Indian areas), and other areas where employment participation ratios can be raised to even higher levels. A concomitant element in this process is the needed effort for linking unemployed and low paid persons to expanded or upgraded employment opportunities generated in the Region. In pursuing these goals, the Old West Region intends to take advantage of existing regional potentials and to resolve existing regional problems. This means taking advantage of the following kinds of potentials: 1) the availability of surplus electrical power; 2) high educational attainment levels in the population; 3) high mobility of the labor force; 4) the existence of mineral and agricultural resources; 5) the natural attractiveness of the Region and the existing tourism base; 6) the good quality of life, and usually low pollution levels; and 7) the generally adequate transportation system and water surpluses in some areas. On the other hand, problems to be overcome would include: 1) inadequate manpower training facilities and programs in many localities to meet the employment needs of growth industries with regional labor; 2) insufficient supplies of regional funds for private investment purposes; and 3) lack of water conveyance and distribution systems in some areas and other facilities to support more productive industries.

Consequently, in order to stimulate the desired increases in per capita personal income, the Old West Regional Commission would focus program efforts on developing the following kinds of facilities and other programs:

- Agricultural facilities, including irrigation, storage, marketing and other projects;
- Industrial/manufacturing facilities, including industrial/commercial parks and associated support (e.g., water, sewer, transport) facilities essential to the development and expansion of higher income industries;
- Tourism/recreation facilities, including needed support facilities;

TABLE XIII-4

SUMMARY OF PUBLIC COST ANALYSIS
RELATED TO REGION GOALS AND OBJECTIVES

	Public Costs (in millions of 1975 dollars) 1975-1985
Capital Requirements	
Sub-State Income Growth	392
Indian Income Growth	116
Related to Energy Developments	290
Employment Services Program	130
Environmental Program ¹	30
Health Program ¹	50
Other Technical, Planning, and Demonstration Assistance	30
Total	1,038

¹ Special technical, planning and demonstration assistance programs.

- A business support loan program for the purchase of land and the erection of buildings to be used by a variety of businesses; for the financing of investment and working capital needs; and for providing other incentives to the private sector and other business operations in the Region;
- Educational facilities, including projects for teaching industrial skills needed to support energy-related and other industries; and for expanding professional schools and research centers to meet the demand for particular professional occupations and to attract economic activities;
- Transportation and other facilities to support overall regional development;
- Manpower training programs and other employment services to link low paid and unemployed persons in the Region with expanding employment opportunities.

In implementing this strategy, utilization would be made of existing electrical generating power surpluses in the Region. Every effort would be made to retain desirable portions of this surplus in the Region in order to upgrade jobs and attract expanding industries with high labor productivity. Existing urban centers (e.g., those in the Eastern portion of the Region, such as Omaha, Lincoln, Fargo and Sioux Falls) and the primary energy growth areas (Southeast Montana, Southwest North Dakota, East and Southwest Wyoming) offer the best short-term (i.e., over the next 5 to 10 years) potentials for industrial growth. Through the use of various manpower training programs, an employee relocation program and other activities, efforts would be made to link needy persons with employment opportunities.

Table XIII-5 provides details of the proposed 1975-1985 public investment assistance program for raising per capita incomes in the Region. This indicates very preliminary estimates of proposed funding levels by program type; and provides general descriptions, possible funding and coordinating agencies (especially at the Federal level), and potential project locations for each program type. Very specific details of program content, the selection of individual projects, and final determinations of funding levels would be provided as the plan is updated in the future. Table XIII-6 provides similar preliminary details for the proposed public employment services program, which complements the proposed public investment program for per capita income growth in the Region.

For the 1975-1985 period, the proposed public investment assistance program would be funded at a level of an estimated \$510 million (in 1975 dollars) and the proposed public employment services program would require an estimated \$130 million (in 1975 dollars). Of these public funds, about 80 percent would be provided by Federal sources and 20 percent from State and local sources. However, 100 percent Federal funding in Indian areas

Table XIII - 5

PROPOSED PUBLIC INVESTMENT ASSISTANCE PROGRAM
FOR PER CAPITA INCOME GROWTH
OLD WEST REGION
1975 - 1985

Program Area	Proposed Preliminary Funding Level (in 1975 dollars)	General Program Description	Funding and Coordinating Public Agencies	Project Locations
Agricultural Facilities	\$ 75 million	Program emphasis would be placed on the development of irrigation facilities, storage and marketing facilities and other facilities designed to increase productivity and earnings associated with agricultural employment.	Trunk-line water transport systems would be built and funded by the Bureau of Reclamation, Department of Interior, or the Corps of Engineers. Irrigation distribution systems and other facilities would be built by local agencies, tribes, districts, cooperatives, etc., with Federal grant-in-aid assistance or loans (e.g., from Farmers Home Administration, U.S. Department of Agriculture); and with Old West Regional Commission supplemental grant-in-aid funding up to 80 percent of project cost. The Bureau of Indian Affairs would represent an additional source of funds.	Low income areas of the Region with substantial opportunities for expanding earnings of agricultural employment would receive funding priority. Special areas of interest would be Indian areas and West Montana, Northwest North Dakota, Northeast and Southeast South Dakota, and Northwest Wyoming.
Industrial/Manufacturing Facilities	\$100 million	This program would provide for the development of industrial/commercial support projects, including industrial parks and associated water, sewer or transport facilities needed to serve such parks. Priority would be given to the development of such support facilities for industries (e.g., manufacturing, agri-business, commercial business centers) which would diversify and enhance the regional economic base and generally raise worker earnings without being an environmental detriment. Parks would be developed in accordance with State and local environmental and land use controls.	In designated Economic Development Administration (EDA) areas projects would be funded with EDA grant-in-aid assistance, or loans; the Farmers Home Administration would represent another funding source. Grants would be supplemented up to 80 percent of project cost by the Old West Regional Commission. EDA allows up to 100 percent financing in all Indian areas. Special funds would also be allocated through the Old West Regional Commission to finance such facilities. Grants assistance would be provided up to 80 percent of facility cost.	Priority would be given to constructing facilities in areas with potential industrial/manufacturing growth. Opportunities would be sought in low-income areas, but major potentials are likely to be in other localities. Utilization would be made of the Region's excess electrical power generating capacity and use of manpower training, relocation and other employment services programs (see Table XIII-6) to link Region's unemployed and low paid workers to these jobs. Special concern would be given to locating opportunities in Indian areas.
Tourism/Recreation Facilities	\$ 25 million	Water, sewer, road and other supporting facilities would be provided to tourism/recreation projects. Consideration would be given on a project-by-project basis to funding major income producing tourism facilities with public funds, and funding cultural facilities (e.g., fine arts centers) in the urban centers to improve urban living and attract additional public and private investment.	EDA, Bureau of Outdoor Recreation, Historical Preservation program and the Community Development Act (of the Department of Housing and Urban Development) provide mechanisms for such funding through grant-in-aid, loan, or block-grant programs. The Old West Regional Commission would supplement grant-in-aid programs up to 80 percent of facility cost.	Development of tourism facilities would occur in low income areas with existing and potential tourism activities (e.g., West Montana, Northwest Wyoming, Indian areas). Cultural facilities would enhance the Region's urban centers (e.g., cities in the eastern part of the Old West area) and complement proposed industrial and business support activities.

Table XIII - 5 (cont.)

Program Area	Proposed Preliminary Funding Level (in 1975 dollars)	General Program Description	Funding and Coordinating Public Agencies	Project Locations
Business Loan Program	\$100 million	<p>Several kinds of potential public programs are proposed to provide general support to businesses (including tribal and cooperative businesses, agricultural cooperatives and agribusinesses) for upgrading employment opportunities, and diversifying and generally enhancing the regional economy:</p> <ul style="list-style-type: none"> • A program would be initiated for the construction of buildings and land utilization. Funds would be provided to designated State agencies, who would establish a revolving loan fund for the purchase of land and the erection of shell-type and other buildings for various business enterprises. States would loan monies to local entities (e.g., a Development Corporation) who would be responsible for program implementation and the repayments of loans with interest. • A loan fund would be established to assist viable businesses in their growth efforts. This program would help existing and new industries finance critical investment and working capital needs. It is expected that loans would be made for up to 5 years. Funds would be provided by the Old West Regional Commission to appropriate State agencies who would be responsible for program operations. In addition, special industrial and tourism promotional projects would be instituted as part of this program to promote the economic and recreational advantages of the Region. Promotion of foreign investments in the Region and the overseas sales of Region products would form a part of the program. • Other potential programs could include establishment of a Regional Development Bank, a Loan Guarantee Program, or a variety of tax incentive policies (e.g., investment tax credits). However, these require additional evaluation and should be part of a total Regional Commission or national program for economic growth. 	Funds would be provided through the Old West Regional Commission to appropriate State agencies having direct operational responsibility for program activities. The programs would be coordinated by the Old West Regional Commission with other Federal agencies (e.g., Small Business Administration, Bureau of Indian Affairs) as appropriate.	<p>This would be a regional program to support business activities in areas with existing or potential investment opportunities. Prime locations in the Region for such support would include the energy growth areas and urban centers with an existing economic base for future growth. Care would be taken to effectively utilize the existing electrical power surplus in the Region. This program would be integrated with and complement other proposed program activities (see this Table and Tables XIII-6 through XIII-8) to link the Region's unemployed and low paid workers to jobs generated by this proposed business support effort.</p>

Table XIII - 5 (cont.)

Program Area	Proposed Preliminary Funding Level (in 1975 dollars)	General Program Description	Funding and Coordinating Public Agencies	Project Locations
Educational Facilities	\$100 million	Construction of facilities is proposed for the teaching of technical and vocational skills to regional residents so that they are prepared to participate in the current and future growth industries of the Region -- especially mining, energy-related industries, contract construction and manufacturing. In addition, funds would be provided to assist in construction or expansion of selected professional schools (e.g., human and veterinary medicine) and research centers at higher education institutions or other appropriate not-for-profit institutions. Projects would be selected based on expected economic and social contributions to the Region.	Department of Health, Education and Welfare has grant-in-aid authority (e.g., Vocational Education Act) for funding such educational facilities. The Old West Regional Commission would supplement such grant funding up to 80 percent of project cost. Bureau of Indian Affairs represents an additional funding source.	Technical/vocational education facilities would be constructed in areas lacking such facilities, but with actual employment growth in mining, energy-related industries, contract construction, manufacturing, etc. The four sub-State areas (Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming) with the greatest potential for energy-related developments represent prime opportunities for such facilities. Also, Indian areas and other locations may require such facilities. Opportunities would be explored to train people in areas where they reside prior to migration or relocation to obtain employment. Professional schools and research centers would be expanded selectively, using existing institutions as a development base.
Transportation Facilities	\$ 50 million	To support future industrial and other developments resulting from the foregoing programs, it is expected that several major highway and airport projects will be required to achieve regional goals. These will likely be relatively major links in the regional transport system, and not merely supporting an individual facility or community.	Federal Highway Administration and the Federal Aviation Administration of the Department of Transportation have grant-in-aid authority for financing such facilities. Where appropriate, the Old West Regional Commission would supplement construction grants up to 80 percent of project costs.	As needed in the Region to support goals, other proposed programs, and general economic growth.
Other Facilities	\$ 60 million	Other supporting requirements to achieve regional goals are likely to include water, hospital or other facility investments.	Various grant-in-aid and revenue sharing programs are available in HEW and HUD. Bureau of Reclamation and Corps of Engineers also build such facilities. The Commission would supplement facility grants up to 80 percent of project costs.	As needed in the Region to support goals, other proposed programs, and general economic growth.

Table XIII - 6

PROPOSED PUBLIC EMPLOYMENT SERVICES ASSISTANCE PROGRAM
FOR PER CAPITA INCOME GROWTH
OLD WEST REGION
1975 - 1985

Program Type	Proposed Preliminary Funding Level (in 1975 dollars)	General Program Description	Funding and Coordinating Agencies	Program Locations
Manpower Training	\$100 million	This proposed manpower training program recommends flexible utilization of a substantial amount of additional money to be made available through the Comprehensive Employment and Training Act (CETA) of 1973. These monies would be used to upgrade worker skills and to train persons for new and improved jobs in major growth, and more productive, industries in the Region -- especially mining, manufacturing, contract construction, certain service industries. Funds would be used to train workers for specific jobs and to provide incentives to employers to upgrade jobs or to hire under-employed or unemployed persons residing in the Region. This program would complement the proposed public investment assistance program (Table XIII-5) by assuring that income and job opportunities generated by the investment program would go to low-paid and unemployed persons residing in the Region. Funds would be used for teacher salaries and equipment, on-the-job training, stipends, other incentives for employers, and other manpower training activities.	Department of Labor, Manpower Administration, Region VIII Office would administer and allocate these funds to State and local (e.g., tribes) Offices of Manpower as needed to achieve overall regional and manpower program goals.	Program funds would be made available for upgrading the occupational skills of the Region's residents so that they can obtain expanding employment opportunities in the Region (e.g., in energy development or urban-industrial areas). Special Manpower training programs would also be provided in Indian areas.
Other Employment Services	\$ 30 million	Other types of employment services are proposed in order to assist unemployed, under-employed and low-paid workers to obtain new or better jobs in the Region: <ul style="list-style-type: none"> ● Establishment of a regional employment information system which would allow each State and local State Employment Service Office to be immediately aware of existing job opportunities in the Region. Special emphasis would be given to making advance determinations of job opportunities in energy-related industries and rapidly communicating actual job slots which are open, or are about to open, to State Employment Service Offices in the Region. 	Programs would be administered by State Employment Security agencies (or tribes), and special funds would be provided by the U.S. Employment Service, Manpower Administration (Department of Labor) and the Old West Regional Commission.	These would be Region-wide programs; the relocation program would give priority to the transfer of low-paid and unemployed persons from low-income areas of the Region.

Table XIII - 6 (cont.)

Program Type	Proposed Preliminary Funding Level (in 1975 dollars)	General Program Description	Funding and Coordinating Agencies	Program Locations
		<ul style="list-style-type: none"> ● A relocation program is proposed which would provide funds for 1) job recruitment and interviews, and 2) partial payment of the relocation costs of moving workers and their families to actual employment opportunities in the Region. ● A special program is recommended for younger persons about to enter the labor force, emphasizing types and areas of job opportunities in the Region and a description of programs available for upgrading skills. 		

is proposed. On the Federal side, it is proposed that special legislation be considered to furnish additional monies to the specific agencies (see Tables XIII-5 and XIII-6) concerned with program implementation and earmarked for use only in the Old West Region. Monies would be provided to specific programs or projects through existing categorical grant-in-aid, revenue sharing, block-grant or other mechanisms, whichever is appropriate to the utilization of Federal agency funds for a particular activity. Where no Federal mechanism or program exists to fund a particular activity, it is assumed that the Old West Regional Commission would be the source of Federal monies. In addition, the Commission would be a source of supplemental grant-in-aid financing of up to 80 percent of project cost.

To account for energy-related developments and thereby prevent serious disruptions in the regional economy (Goal Three), Table XIII-7 describes the proposed 1975-1985 public investment assistance program for the Region. This program would be for community facilities and preliminary indications are that funds in the amount of about \$290 million would be required during the 1975 to 1985 period. This funding level, program description, possible funding and coordinating agencies and potential project locations as described in Table XIII-7 are drawn directly from the analyses presented in Chapter XII and Appendix J.. The program would be carefully planned and administered, with every effort made to avoid over- or under-building, and achieve the maximum amount of flexibility in facility utilization. Again, it is proposed that monies for this assistance program be supplied through special legislation and provided via the appropriate existing mechanisms and agencies for spending in the Region. The proposed community facilities program would be about 80 percent funded by the Federal Government, with the remaining portion being provided from State and local sources. However, it is proposed that a substantial share of the Federal funds be provided on a loan basis.

To 1) improve environmental and health conditions (Goals Four and Five), 2) provide for increased citizen participation in the regional planning process and furnish a forum for discussing regional issues (Goal Six), and 3) improve the total regional planning process, including the delineation of specific programs and the selection of individual local projects to implement the regional growth strategy and achieve plan goals, Table XIII-8 presents a description of a proposed technical, planning, and demonstration assistance program to be implemented by the Commission. To implement this program, it is proposed that \$110 million be provided (by special legislation) through the Old West Regional Commission during the 1975-1985 period.

Finally, Table XIII-9 summarizes the proposed Old West Regional Commission Action Plan. For the period 1975-1985, a public expenditure program of approximately \$1.04 billion or about \$104 million per year is proposed for the Old West Region. These represent monies which are above and beyond current expected public outlays for the Region, and which are needed to achieve Region goals and objectives. Of the total proposed public assistance programs, \$800 million would be for investment purposes with \$510 million of this amount for improving personal

Table XIII - 7

PROPOSED PUBLIC INVESTMENT ASSISTANCE PROGRAM
TO ACCOMMODATE ENERGY-RELATED DEVELOPMENTS
OLD WEST REGION
1975 - 1985

Program Area	Proposed Preliminary Funding Level (in 1975 dollars)	General Program Description	Funding and Coordinating Public Agencies	Project Locations
Community Facilities	\$290 million	<p>Chapter XII and Appendix J outline community facility requirements to meet the needs of expanded populations resulting from job opportunities associated with energy-related developments. The proposed \$290 million community development program would be used to meet the "front-end" or advance capital costs of the following kinds of facilities, in the roughly approximated proportions shown: schools (60 percent), utilities (13 percent), streets and roads (9 percent), hospitals (8 percent), police and fire (4 percent), land (3 percent), open space (2 percent) and solid waste (less than 1 percent). It is assumed that expanded or new community developments would result from planned growth, otherwise costs of development could increase to \$360 million (in 1975 dollars). It is proposed that a special community development fund be established and that such facilities be financed by a combination of loans and grants to local communities or through the States to local communities. Loan repayments would be made from local tax monies which should in most cases be sufficient in later years to cover these initial capital costs and interests.</p>	<p>Funds might be provided through the Community Development Act (i.e., block-grant funds from HUD) or the Farmers Home Administration, and additional special funds would be provided to the Old West Regional Commission for Community Development in energy development areas. The New Community Development Act would be reviewed as a possible model for program implementation. HUD is no longer accepting applications for participation in the New Community Development program.</p>	<p>Assistance would be focused in major energy-related development areas. Analysis indicates that Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming would be primary areas receiving program assistance. Wherever possible, attempts would be made to achieve economies of scale which can enhance the opportunities for future economic growth and development in the Region.</p>

Table XIII - 3

PROPOSED TECHNICAL, PLANNING AND DEMONSTRATION ASSISTANCE PROGRAM
OLD WEST REGION
1975 - 1985

Program Area	Proposed Preliminary Funding Level (in 1975 dollars)	General Program and Project Descriptions	
		Environmental Activities	Health Services Activities
Environmental Activities	\$ 30 million	<p>The Old West Regional Commission proposes to provide annual grants to States and Indian tribes in the Region to allow for adequate enforcement of environmental and land reclamation laws; review of existing environmental and land use laws or standards; and preparation and application of additional environmental standards or management practices where needed. To support this effort a series of relevant research projects would also be funded by the Commission.</p> <p>A program would be established for improving rural health services throughout the Region. The Old West Regional Commission would fund a variety of health projects, each of which would be coordinated with appropriate Federal (e.g., HRA and HSA in DHEM), State and local agencies. Example of projects include:</p> <ul style="list-style-type: none"> • A study to formulate regional health goals, and a program design for achieving these goals along with an estimate of program costs. • Paramedical training to complement the existing health service delivery system and to substitute for the current lack of physicians. • Design of incentive programs and demonstration projects for attracting larger numbers of physicians. • Design of effective transport systems for emergency health care. • Development of mobile health centers to provide preventive care and diagnostic services. <p>Other activities would be directed at increasing citizen participation in government decision-making, providing a forum for discussing regional issues, and generally improving the Commission planning process especially in the area of program and project selection for public financing. Examples of potential projects to be funded are listed below.</p> <ul style="list-style-type: none"> • A series of State and local public meetings and programs could be held to begin assessing citizen choices and their views on the future of the Region and what changes and improvements should be sought. This would provide a means for integrating citizen views into the Commission's regional planning process, and the results would be utilized in setting regional goals and objectives. • Sector studies and project evaluation or feasibility studies would be performed, with participation by local government entities. This would assist in making more definitive program and project recommendations for achieving regional goals, and would provide better estimates of cost and public funding requirements by agency. The kinds of studies that would be helpful in this analysis are: <ul style="list-style-type: none"> - A regional study of the manufacturing industry, including its future potential and needs. - Special emphasis would be placed on determining opportunities (and problems) in the energy-related industry, food-processing, and the agricultural and mining equipment manufacturing industries. 	
Other Activities	\$ 30 million		

Table XIII - 8 (cont.)

Program Area	Proposed Preliminary Funding Level (in 1975 dollars)	General Program and Project Descriptions
		<ul style="list-style-type: none"> - A more thorough study of private capital formation problems and potentials in the Region, and the design of policy and program recommendations as appropriate to resolve problems and take advantage of potentials. - A more thorough study of water supply, demand, and price structure in the Region. A designation of actual and potential local water problems, and needed future projects in relation to supply, demand, pricing and competitive issues. - An agricultural policy study designed to suggest and formulate possible procedures for stabilizing prices, increasing productivity, and eliminating certain environmental problems. - An evaluation of regional and local manpower supply and demand, with an analysis of current detailed skill traits in relation to existing and projected employment demand. The study should also survey current training facility capacities and utilization and make recommendations on specific present and future facility and training requirements. <p>• Continuous assessment will be made of how the Region's employment, population, income, environment and other characteristics or conditions are changing. Particular attention will be given to the impact of energy-related developments and their influence on these factors and conditions. It is essential that these be continuously monitored and plans be drawn to avoid detrimental impacts on the Region's population and socio-economic conditions.</p>

Table XIII - 9

SUMMARY OF PROPOSED PUBLIC
ASSISTANCE PROGRAMS
OLD WEST REGION
1975 - 1985

<u>Assistance Activity</u>	<u>Preliminary 1975-1985 Funding Level</u> <u>(in millions of 1975 dollars)</u>	
For Per Capita Income Growth		
Investment Assistance	\$ 75	
Agricultural Facilities	100	
Industrial/Manufacturing Facilities	25	
Tourism/Recreation Facilities	100	
Business Loan Program	100	
Educational Facilities	50	
Transportation Facilities	60	
Other Facilities		
	Subtotal	\$510
Employment Services Assistance	\$100	
Manpower Training	30	
Other Employment Services		
	Subtotal	\$130
Related to Energy Development		
Investment Assistance	\$290	
Community Facilities		
	Subtotal	\$290
Technical, Planning and Demonstration Assistance		
Environmental Activities	\$ 30	
Health Service Activities	50	
Other Activities	30	
	Subtotal	\$110
	Total	\$1,040

income levels and \$290 million associated with projected energy-related community facility needs; another \$130 million would be for employment services associated with income growth goals of the Region; and \$110 million would be expended for technical, planning and demonstration assistance in environmental, health, and other fields related to improving regional planning and bringing the general public into the governmental decision-making process.

APPENDIX A

LIST OF COUNTIES INCLUDED
IN SUB-STATE ANALYSIS AREAS

Table A-I

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
Montana	Northeast	Blaine Broadwater Cascade Chouteau Daniels Fergus Glacier Golden Valley Hill Jefferson Judith Basin Lewis and Clark Liberty Musselshell Petroleum Phillips Pondera Roosevelt Sheridan Teton Toole Valley Wheatland
	Southeast	Big Horn Carbon Carter Custer Dawson Fallon Gallatin Garfield McCone Meagher Park Powder River Prairie Richland Rosebud Stillwater Sweet Grass Treasure Wibaux Yellowstone Yellow National Park

Table A-I (cont.)

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
Montana (cont.)	West	Beaverhead Deer Lodge Flathead Granite Lake Lincoln Madison Mineral Missoula Powell Ravalli Sanders Silver Bow
Nebraska	Central	Adams Arthur Blaine Buffalo Chase Clay Custer Dawson Dundy Franklin Frontier Furnas Garfield Gosper Grant Greeley Hall Hamilton Harlan Hayes Hitchcock Hooker Howard Kearney Keith Lincoln Logan Loup McPherson Merrick Nuckolls Perkins Phelps

Table A-I (cont.)

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
Nebraska (cont.)	Central (cont)	Red Willow Sherman Thomas Valley Webster Wheeler
	East (Omaha)	Cass Dodge Douglas Otoe Sarpy Saunders Washington
	Northeast	Antelope Boone Boyd Brown Burt Cedar Cherry Colfax Cuming Dakota Dixon Holt Keya Paha Knox Madison Nance Pierce Platte Rock Stanton Thurston Wayne
	Southeast	Butler Fillmore Gage Jefferson Johnson Lancaster Nemaha Pawnee Polk

Table A-I (cont.)

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
Nebraska (cont.)	Southeast (cont)	Richardson Saline Seward Thayer York
	West (Panhandle)	Banner Box Butte Cheyenne Dawes Deuel Garden Kimball Morrill Scotts Bluff Sheridan Sioux
North Dakota	Northeast	Benson Cavalier Eddy Grand Forks Nelson Pembina Ramsey Rolette Towner Walsh
	Northwest	Bottineau Burke Divide McHenry McKenzie Mountrail Pierce Renville Ward Williams
	Southeast	Barnes Cass Dickey Foster Griggs La Moure

Table A-1 (cont.)

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
North Dakota (cont.)	Southeast (cont.)	Logan McIntosh Ransom Richland Sargent Steele Stutsman Traill Wells
	Southwest	Adams Billings Bowman Burleigh Dunn Emmons Golden Valley Grant Hettinger Kidder McLean Mercer Morton Oliver Sheridan Sioux Slope Stark
South Dakota	Northeast	Beadle Brookings Brown Clark Codington Day Deuel Edmunds Faulk Grant Hamlin Hand Kingsbury Lake Marshall McPherson Miner Moody Roberts Spink

Table A-I (cont.)

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
South Dakota (cont.)	Southeast	Aurora Bon Homme Brule Charles Mix Clay Davison Douglas Gregory Hanson Hutchinson Jerauldf Lincoln McCook Minnehaha Sanborn Turner Union Yankton
	West	Bennett Buffalo Butte Campbell Corson Custer Dewey Fall River Haakon Harding Hughes Hyde Jackson Jones Lawrence Lyman Meade Mellette Pennington Perkins Potter Shannon Stanley Sully Todd Tripp Walworth Washabaugh Ziebach

Table A-I (cont.)

COUNTIES CONTAINED IN SUB-STATE ANALYSIS AREAS

<u>State</u>	<u>Sub-State Area</u>	<u>Counties in Sub-State Area</u>
Wyoming	East	Albany
		Campbell
		Carbon
		Converse
		Crook
		Fremont
		Goshen
		Johnson
		Laramie
		Natrona
	Northwest	Niobrara
		Platte
		Sheridan
		Weston
		Big Horn
	Southwest	Hot Springs
		Park
		Teton
		Washakie
		Lincoln
		Sublette
		Sweetwater
		Uinta

APPENDIX B

NATIONAL ENVIRONMENTAL STANDARDS

AND SUPPLEMENTAL COMPARISONS

This appendix presents supporting data for the analysis of environmental quality in the Region as presented in Chapter V.

Table B-1 presents national ambient air quality standards (NAAQS) established by the EPA in April 1971 for six common air pollutants. The primary standards are generally based on health considerations and the secondary standards on esthetics, property and vegetation. Table B-2 presents reference criteria for selected water pollution parameters currently under consideration by the EPA.

Table B-3 presents national river quality reference levels currently used by EPA as guidelines for comparing river water quality. Each parameter name is assigned a STORET (EPA's information storage and retrieval system) parameter number. Measurements of these reference parameters for river segments in the U.S. are presented in Table B-4. Parameters are listed by STORET parameter number and each parameter is rated as "exemplary" (good water quality), "exceptional" (poor water quality), or "also measured but neither exemplary nor exceptional" for each particular river segment. Reference measurements of a designated parameter on a given river segment are calculated by taking the mean among the monitoring stations along that segment of the median measurement made by each individual station. A parameter is rated "exemplary" if the mean median measurement is better than the "good water reference level" listed in Table B-3, and is rated "exceptional" if the mean median is worse than the "reference level" in Table B-3. This data is used to rank the water quality of the river segments in the nation in Chapter 5 (See Table V-5).

Figure B-1 shows the distribution of monitoring sites used by the EPA for measuring particulate emissions. Table B-5 shows the number of stations reporting violations of the primary NAAQS for particulates for the nation as a whole, for the Region, and for the various States in the Region.

Table B-1

NATIONAL AMBIENT AIR QUALITY STANDARDS
1975

Pollutant	Primary Standards	Secondary Standards
Sulfur oxides	80 ug/m ³ (0.03 ppm) annual 365 ug/m ³ (0.14 ppm) max 24 hr. conc. not to be exceeded more than once a year.	1,300 ug/m ³ (0.5 ppm) max 3 hr. conc. not to be exceeded more than once a year.
Particulate matter	75 ug/m ³ annual geom. mean 260 ug/m ³ max 24 hr. conc. not to exceeded more than once a year.	60 ug/m ³ annual geom. mean, 150 ug/m ³ max 24 hr. conc. not to be ex- ceeded more than once a year.
Carbon monoxide	10,000 ug/m ³ (9 ppm) max 8 hr. conc. not to be exceeded more than once a year.	Same as primary.
	40,000 ug/m ³ (35 ppm) max 1 hr conc. not to be exceeded more than once a year.	Same as primary.
Photochemical oxidants	160 ug/m ³ (0.08 ppm) max 1 hr. conc. not to be exceeded more than once a year.	Same as primary.
Hydrocarbons	160 ug/m ³ (0.24 ppm) max. 3 hr. conc. (6 to 9 a.m.) not to be exceeded more than once a year.	Same as primary.
Nitrogen oxides (as nitrogen dioxide)	100 ug/m ³ (0.05 ppm) annual arith. mean.	Same as primary

Note: ug/m³ = micrograms per cubic meter; ppm = parts per million.

Source: The Bureau of National Affairs, Inc., Environment Reporter,
Washington, D.C., 1975.

Table B -2

SELECTED NATIONAL EPA WATER QUALITY REFERENCE CRITERIA¹ 1975

Polutant Parameter	Reference Level	Stream Use Designation
Total Coliforms per 100 ml, MFI	10,000/100ml ²	Recreation
Fecal Coliforms per 100 ml, MF	200/100ml	Aquatic Life
Dissolved oxygen	4.0 mg/l ²	Aquatic Life
Alkalinity as CaCO ₃	20.0 mg/l	Aquatic Life
Chloride as Cl	250.0 mg/l	Domestic Water Supply
Total Sulfate as SO ₄	250.0 mg/l	Domestic Water Supply
Total Nitrate as N	10.0 mg/l	Prevention of algal bloom
Total Phosphate as PO ₄	0.3 mg/l ²	Prevention of algal bloom
Turbidity (JCU)	50.0 JCU ²	Aquatic Life
pH (Standard Units)	6.5-9.0	Aquatic Life
Total dissolved solids at 105°C	500.0 mg/l ²	Domestic Water Supply
Total suspended solids	80.0 mg/l	Good-Moderate Fisheries
Total dissolved solids at 180°C	500.0 mg/l ²	Domestic Water Supply
Temperature F°	90°F ²	Aquatic Life
Temperature C°	37.3°C ²	Aquatic Life
Total Phosphorous as P	0.1 mg/l ²	Prevention of algal bloom
Copper	10.0 ug/l	Aquatic Life
Iron	1.0 ug/l	Aquatic Life
Zinc	70.0 ug/l	Aquatic Life
Mercury	0.1 ug/l	Aquatic Life
D.D.T.	0.003 ug/l	Aquatic Life
Dieldrin	0.003 ug/l	Aquatic Life
Aldrin	0.003 ug/l	Aquatic Life

¹ Reference level values are from 1975 Draft 304(a) Water Quality Criteria unless otherwise indicated.

² Reference level from National Water Quality Inventory, EPA, 1974.

Units: ml-millileter, mg/l-milligram per liter, ug/l-microgram per liter.

Source: Office of Water Planning and Standards, Draft "304(a) Water Quality Criteria", EPA, Washington, D.C., June, 1975.
Office of Water Planning and Standards, National Water Quality Inventory, EPA, Washington, D.C., 1974.

Table B-3

NATIONAL RIVER QUALITY REFERENCE LEVELS

STORET Parameter Number	Parameter Name (Method)	Reference Level	Good Water Reference Level
10	Water temperature	32°C-aquatic life ¹	10 Jackson candle units- aquatic life ¹
70	Turbidity	50 Jackson candle units aquatic life ¹	
80	Color	75 platinum-cobalt units water supply ²	
300	Dissolved oxygen	4 mg/l-aquatic life, lower limit ¹	5 mg/l-aquatic life, lower limit ¹
310	BOD (5 day)	30 mg/l-secondary treatment ⁴	3 mg/l-1/10 reference level
400	pH	6-9 standard units-aquatic life range ¹	
515	Total filtrable residue (105°C)	500 mg/l-water supply ¹	
530	Total nonfiltrable residue	80 mg/l-aquatic life ²	.29 mg/l-aquatic life ²
610	Total ammonia (as N)	.89 mg/l-aquatic life ²	
620	Total ammonia (as N)	.9 mg/l-nutrient ³	.03 mg/l-1/10 reference level
630	Total nitrate plus nitrate (as N)	.9 mg/l-nutrient ³	.03 mg/l-1/10 reference level
650	Total phosphate (as PO ₄)	.307 mg/l-nutrient ¹	.01 mg/l-1/10 reference level
653	Total soluble phosphate	.307 mg/l-nutrient ¹	
665	Total phosphorus (as P)	.1 mg/l-nutrient ¹	
940	Chloride (as Cl)	250 mg/l-water supply ²	1,000 per 100 ml- 1/10 reference level
945	Sulfate (as SO ₄)	250 mg/l-water supply ²	1,000 per 100 ml- 1/10 reference level
31501	Total coliforms (membrane filter, immediate, M-endo, 35°C)	10,000 per 100 ml-recreation ¹	1,000 per 100 ml-1/10 reference level
31503	Total coliforms (membrane filter, delayed, M-endo, 35°C)	10,000 per 100 ml-recreation ¹	1,000 per 100 ml-1/10 reference level
31504	Total coliforms (membrane filter, immediate, les endo agar, 35°C)	10,000 per 100 ml-recreation ¹	1,000 per 100 ml-1/10 reference level
31505	Total coliforms (most probable number, confirmed, 35°C)	10,000 per 100 ml-recreation ¹	1,000 per 100 ml- 1/10 reference level
31507	Total coliforms (most probable number, completed, 35°C)	2,000 per 100 ml-recreation ¹	200 per 100 ml-recreation ¹
31615	Fecal coliforms (most probable number, EC, 44.5°C)	2,000 per 100 ml-recreation ¹	200 per 100 ml-recreation ¹
31616	Fecal coliforms (membrane filter M-FC, 44.5°C)	2,000 per 100 ml-recreation ¹	200 per 100 ml-recreation ¹
32730	Phenols	1 ug/l-water supply ²	
70300	Total filtrable residue (180°C)	500 mg/l-water supply ¹	

1 Water Planning Division, Guidelines for Developing or Revising Water Quality Standards, EPA, Washington, D.C., 1973.

2 Office of Water Planning and Standards, Criteria for Water Quality, EPA, Washington, D.C., 1973

3 Federal Water Pollution Control Administration, Biological Associated Problems in Freshwater Environments, Washington, D.C., 1966.

4 EPA Standard for Secondary Treatment (40 CFR Part 133).

Source: See Table V-5

Table B-4

WATER QUALITY OF MAJOR NATIONAL RIVERS
BY MAINSTREAM SEGMENT
1973

River Segment	Storet Parameter Number																Totals					
																	E	X	O	All		
	10	70	80	300	310	400	515	530	610	620	630	650	653	665	940	945	31501	31503	31504	31505	31615	32730
Hudson	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Delaware	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Susquehanna	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Potomac	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Alabama	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Ohio	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Middle Ohio	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Ohio	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Tennessee	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Tennessee	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Missouri	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Middle Missouri	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Missouri	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Mississippi	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Miss. Near Minn.	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Middle Mississippi	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Mississippi	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Arkansas	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Arkansas	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Red	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Red	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Brazos	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Rio Grande	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Upper Colorado	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Lower Colorado	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Sacramento	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Columbia	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Snake	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Willamette	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Yukon	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Boston Harbor	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Chicago Area-Tribs.	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Chicago Area-L. Michigan	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Detroit Area-Tribs.	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0
Detroit Area-Rivers	0	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	0	0	0	0	0	0

E-- Exemplary

X - Exceptional

0 - Also measured but neither exemplary nor exceptional

SOURCE: See Table V-5

Figure B-1

LOCATION OF MONITORING SITES MEETING EPA TREND CRITERIA FOR
TOTAL SUSPENDED PARTICULATES (TSP)
1973

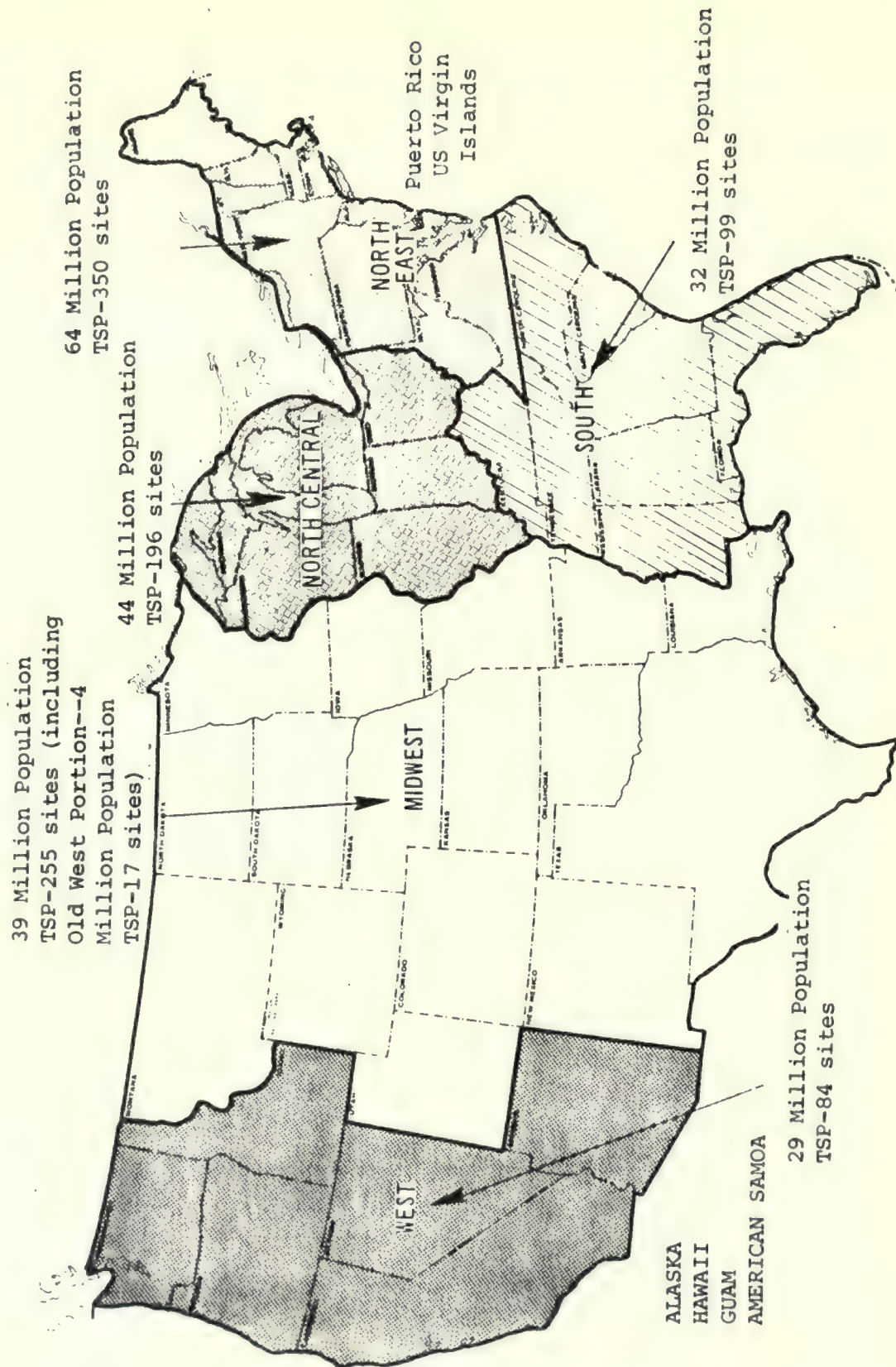


TABLE B-5

NUMBER OF STATIONS EXCEEDING PRIMARY NAAQS FOR PARTICULATES, BY AQCR
OLD WEST REGION AND NATION
1969-1973

		1969		Percent in Violation		1970		Percent in Violation		1971		Percent in Violation		1972		Percent in Violation		1973		Percent in Violation	
Region																					
Number of Stations:	Reporting valid data ¹	12				14				21				50				55			
	Recording annual violation	1	8			2	14			8	38			9	18			10	18		
	Reporting valid data ²	18				23				39				55				86			
	Recording 24-hour violation	2	11			1	4			2	5			4	6			11	13		
Montana																					
Number of Stations:	Reporting valid data	2				0				1				1				1			
	Recording annual violation	0	0			0	0			0	0			0	0			0	0		
	Reporting valid data	3				2				2				2				1			
	Recording 24-hour violation	1	33			0	0			0	0			0	0			0	0		
Nebraska																					
Number of Stations:	Reporting valid data	2				3				13				28				25			
	Recording annual violation	1	50			1	33			8	46			7	25			5	20		
	Reporting valid data	3				6				28				35				47			
	Recording 24-hour violation	1	33			1	17			1	4			2	5			5	11		
North Dakota																					
Number of Stations:	Reporting valid data	4				9				1				15				16			
	Recording annual violation	0	0			1	11			0	0			2	13			2	13		
	Reporting valid data	6				11				3				20				20			
	Recording 24-hour violation	0	0			0	0			0	0			2	10			4	20		
South Dakota																					
Number of Stations:	Reporting valid data	1				0				3				3				7			
	Recording annual violation	0	0			0	0			1	33			0	0			2	29		
	Reporting valid data	2				2				2				2				5			
	Recording 24-hour violation	0	0			0	0			1	50			0	0			1	20		
Wyoming																					
Number of Stations:	Reporting valid data	3				2				3				3				6			
	Recording annual violation	0	0			0	0			1	33			0	0			1	17		
	Reporting valid data	4				2				4				4				13			
	Recording 24-hour violation	0	0			0	0			0	0			0	0			1	8		
United States																					
Number of Stations:	Reporting valid data	751				631				854				1695				1300			
	Recording annual violation	335	47			313	50			386	45			547	32			341	26		
	Reporting valid data	935				968				1641				2464				3380			
	Recording 24-hour violation	183	20			159	16			192	12			251	10			303	9		

Note: Monitoring data from Regional AQCRs include measurements from a few stations which border but are not contained within the Old West Region.

¹ Four valid quarters of data.

² At least one valid quarter of data.

Source: See Table V-6.

APPENDIX C

1970

HOUSING VACANCIES

BY SUB-STATE AREA

AND COUNTY

Table C-1
SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Montana					
Northeast	185,354	9,762	11.44	6,640	68.02
Blaine	2,305	349	15.14	134	38.40
Broadwater	914	119	13.02	78	65.55
Cascade	27,166	1,874	6.90	1,326	70.76
Chouteau	2,484	433	17.43	284	65.59
Daniels	1,222	204	16.69	123	60.29
Fergus	4,700	674	14.34	443	65.73
Glacier	3,355	350	10.43	271	77.43
Golden Valley	389	67	17.22	54	80.60
Hill	5,726	501	8.75	365	72.85
Jefferson	1,535	175	11.40	77	44.00
Judith Basin	1,029	156	15.16	79	50.64
Lewis and Clark	11,788	962	8.16	673	69.96
Liberty	728	93	12.77	78	83.87
Musselshell	1,577	257	16.30	130	50.58
Petroleum	275	45	16.36	13	28.89
Phillips	2,066	344	16.65	134	38.95
Pondera	2,198	200	9.10	119	59.50
Roosevelt	3,340	392	11.74	256	65.31
Sheridan	2,027	212	10.46	117	55.19
Teton	2,199	256	11.64	184	71.88
Toole	2,129	257	12.07	213	82.88
Valley	5,193	1,708	32.89	1,384	81.03
Wheatland	1,009	134	13.28	105	78.36
Southeast	73,965	6,450	8.72	4,459	69.13
Big Horn	2,872	208	7.24	140	67.31
Carbon	3,044	506	16.62	364	71.94
Carter	721	98	13.59	80	81.63
Custer	4,316	380	8.80	310	81.58
Dawson	3,700	332	8.97	241	72.59
Fallon	1,357	137	10.10	103	75.18
Gallatin	10,330	576	5.58	443	76.91
Garfield	683	148	21.67	58	39.19
McCone	1,033	215	20.81	82	38.14
Meagher	1,026	316	30.80	91	28.80
Park	4,511	564	12.50	417	73.94
Powder River	954	114	11.95	73	64.04
Prairie	690	92	13.33	63	68.48
Richland	3,406	346	10.16	204	58.96

Table C-1 (cont.)

SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Rosebud	2,032	215	10.58	164	76.28
Stillwater	1,906	319	16.74	205	64.26
Sweet Grass	1,369	313	22.86	154	49.20
Treasure	433	112	25.87	54	48.21
Wibaux	535	74	13.83	39	52.70
Yellowstone	29,026	1,385	4.77	1,174	84.77
Yellow National Park	21	-	-	-	-
West	81,436	7,239	8.89	4,981	68.81
Beaverhead	3,009	326	10.83	185	56.75
Deer Lodge	5,010	429	8.56	276	64.34
Flathead	13,279	974	7.33	692	71.05
Granite	1,165	242	20.77	181	74.79
Lake	5,320	848	15.94	633	74.65
Lincoln	5,800	453	7.81	240	52.98
Madison	2,091	395	18.89	226	57.22
Mineral	1,023	126	12.32	104	82.54
Missoula	18,771	759	4.04	644	84.85
Powell	2,392	364	15.22	201	55.22
Ravalli	5,178	440	8.50	314	71.36
Sanders	2,822	449	15.91	245	54.57
Silver Bow	15,576	1,434	9.21	1,040	72.52
Nebraska					
Central	113,994	10,261	9.00	7,223	70.39
Adams	10,733	593	5.53	475	80.10
Arthur	217	50	23.04	45	90.00
Blaine	344	79	22.97	60	75.95
Buffalo	10,445	788	7.54	622	78.93
Chase	1,584	176	11.11	150	85.23
Clay	3,025	276	9.12	209	75.72
Custer	5,584	717	12.84	397	55.37
Dawson	7,069	605	8.56	482	79.67
Dundy	1,256	193	15.37	142	73.58
Franklin	1,899	223	11.74	158	70.85
Frontier	1,503	203	13.51	144	70.94
Furnas	2,820	303	10.74	222	73.27
Garfield	940	49	5.21	36	73.47
Gosper	764	64	8.38	37	57.81
Grant	380	87	22.89	60	68.97
Greeley	1,414	137	9.69	72	52.55

Table C-1 (cont.)
SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Hall	14,854	800	5.39	678	84.75
Hamilton	3,029	225	7.43	159	70.67
Harlan	1,814	256	14.11	182	71.09
Hayes	590	100	16.95	67	67.00
Hitchcock	1,678	265	15.79	146	55.09
Hooker	404	57	14.11	39	68.42
Howard	2,382	217	9.11	135	62.21
Kearney	2,348	158	6.73	106	67.09
Keith	3,026	272	8.99	218	80.15
Lincoln	10,539	844	8.01	614	72.75
Logan	366	34	9.29	25	73.53
Loup	354	60	16.95	48	80.00
McPherson	250	59	23.60	41	69.49
Merrick	3,048	267	8.76	196	73.41
Nuckolls	2,841	306	10.77	187	61.11
Perkins	1,356	163	12.02	105	64.42
Phelps	3,467	228	6.58	159	69.74
Red Willow	4,599	467	10.15	325	69.59
Sherman	1,811	258	14.25	74	28.68
Thomas	340	57	16.76	39	68.42
Valley	2,301	283	12.30	153	54.06
Webster	2,141	192	8.97	125	65.10
Wheeler	479	150	31.32	91	60.67
East (Omaha)	180,744	10,334	5.72	8,782	84.98
Cass	6,445	762	11.82	487	63.91
Dodge	11,872	557	4.69	412	73.97
Douglas	129,767	7,307	5.63	6,729	92.09
Otoe	5,850	430	7.35	218	50.70
Sarpy	16,507	527	3.19	410	77.80
Saunders	5,920	467	7.89	333	71.31
Washington	4,383	284	6.48	193	67.96
Northeast	74,254	6,871	9.25	4,261	62.01
Antelope	3,350	334	9.97	172	51.50
Boone	2,886	295	10.22	158	53.56
Boyd	1,372	123	8.97	72	58.54
Brown	1,583	189	11.94	158	83.60
Burt	3,391	209	6.16	131	62.68
Cedar	3,851	398	10.33	216	54.27
Cherry	2,706	426	15.74	321	75.35
Colfax	3,547	286	8.06	115	40.21

Table C-1 (cont.)
SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Cuming	3,925	207	5.27	148	71.50
Dakota	4,174	263	6.30	197	74.90
Dixon	2,703	295	10.91	105	35.59
Holt	4,490	800	17.82	678	84.75
Keya Paha	575	157	27.30	55	35.03
Knox	4,241	431	10.16	254	58.93
Madison	9,603	637	6.63	443	69.54
Nance	1,943	259	13.33	113	43.63
Pierce	3,000	287	9.57	143	49.83
Platte	8,428	455	5.40	364	80.00
Rock	952	152	15.97	76	50.00
Stanton	2,043	247	12.09	126	51.01
Thurston	2,251	167	7.42	72	43.11
Wayne	3,240	254	7.84	144	56.69
Southeast	108,844	7,818	7.18	5,666	72.47
Butler	3,501	386	11.03	205	53.11
Fillmore	3,080	276	8.96	136	49.28
Gage	8,776	585	6.67	429	73.33
Jefferson	4,158	375	9.02	232	61.87
Johnson	2,157	173	8.02	90	52.02
Lancaster	57,236	3,324	5.81	2,883	86.73
Nemaha	3,319	291	8.77	200	68.73
Pawnee	1,801	199	11.05	90	45.23
Polk	2,449	238	9.72	198	83.19
Richardson	4,847	428	8.83	263	61.45
Saline	4,848	442	9.12	225	50.90
Seward	4,673	365	7.81	205	56.16
Thayer	3,066	328	10.70	201	61.28
York	4,933	408	8.27	309	75.74
West (Panhandle)	33,637	3,264	9.70	2,530	77.51
Banner	395	46	11.65	46	100.00
Box Butte	3,741	360	9.62	255	70.83
Cheyenne	4,109	575	13.99	475	82.61
Dawes	3,333	300	9.00	198	66.00
Deuel	1,087	117	10.76	96	82.05
Garden	1,208	159	13.16	114	71.70
Kimball	2,064	185	8.96	153	82.70
Morrill	2,192	293	13.37	207	70.65
Scotts Bluff	12,054	787	6.53	653	82.97
Sheridan	2,607	254	9.74	193	75.98
Sioux	847	188	22.20	140	74.47

Table C-1 (cont.)

SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
North Dakota					
Northeast	45,027	4,248	9.43	2,145	50.49
Benson	2,596	253	9.75	144	56.92
Cavalier	2,886	418	14.48	183	43.78
Eddy	1,471	222	15.09	109	49.10
Grand Forks	18,074	1,099	6.08	771	70.15
Nelson	2,196	316	14.39	131	41.46
Pembina	3,698	427	11.55	208	48.71
Ramsey	4,313	471	10.92	247	52.44
Rolette	2,984	275	9.22	77	28.00
Towner	1,635	226	13.82	89	39.38
Walsh	5,174	541	10.46	186	34.38
Northwest	42,379	4,258	10.05	2,080	48.85
Bottineau	3,272	379	11.58	136	35.88
Burke	1,813	303	16.71	97	32.01
Divide	1,643	229	13.94	100	43.67
McHenry	3,169	457	14.42	171	37.42
McKenzie	2,133	329	15.42	162	49.24
Mountrail	3,072	541	17.61	162	29.94
Pierce	2,046	188	9.19	94	50.00
Renville	1,323	147	11.11	73	49.66
Ward	17,361	1,028	5.92	619	69.94
Williams	6,547	657	10.04	366	55.71
Southeast	66,236	4,915	8.93	3,030	51.23
Barnes	5,091	525	10.31	198	37.71
Cass	24,120	1,450	6.01	1,011	69.72
Dickey	2,424	288	11.88	157	54.51
Foster	1,625	220	13.54	118	53.64
Griggs	1,515	165	10.89	64	38.79
La Moure	2,537	329	12.97	129	39.21
Logan	1,384	158	11.42	88	55.70
McIntosh	1,972	210	10.65	135	64.29
Ransom	2,575	291	11.30	139	47.77
Richland	5,683	386	6.79	187	48.45
Sargent	2,001	170	8.50	96	56.47
Steele	1,355	180	13.28	66	36.67
Stutsman	7,606	692	9.10	322	46.53
Traill	3,483	435	12.49	178	40.92
Wells	2,865	416	14.52	142	34.13

Table C-1 (cont.)
SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Southwest	46,823	4,431	9.46	2,299	51.88
Adams	1,313	113	8.61	82	72.57
Billings	361	5	1.39	5	100.00
Bowman	1,365	161	11.79	97	60.25
Burleigh	12,964	795	6.13	569	71.57
Dunn	1,567	251	16.02	67	26.69
Emmons	2,167	254	11.72	95	37.40
Golden Valley	911	131	14.38	61	46.56
Grant	1,625	175	10.77	87	49.71
Hettinger	1,579	128	8.11	89	69.53
Kidder	1,500	232	15.47	100	43.10
McLean	3,917	566	14.45	228	40.28
Mercer	2,161	222	10.27	100	45.05
Morton	6,291	540	7.15	265	58.89
Oliver	767	127	16.56	50	39.37
Sheridan	1,178	174	14.77	69	39.67
Sioux	943	119	12.62	30	25.21
Slope	478	77	16.11	38	49.35
Stark	5,736	451	7.86	267	59.20
South Dakota					
Northeast	72,123	6,791	9.42	3,527	51.94
Beadle	7,099	456	6.42	308	67.54
Brookings	6,722	446	6.63	334	74.89
Brown	11,965	751	6.28	561	74.70
Clark	2,050	186	9.07	109	58.60
Codington	6,582	515	7.82	295	57.28
Day	3,401	627	18.44	306	48.80
Deuel	2,127	305	14.34	121	39.67
Edmunds	1,801	145	8.05	85	58.62
Faulk	1,355	172	12.69	80	46.51
Grant	2,984	232	7.77	89	38.36
Hamilin	1,928	276	14.32	153	55.43
Hand	2,031	254	12.51	111	43.70
Kingsbury	2,732	237	8.67	127	53.59
Lake	3,904	373	9.55	186	49.87
Marshall	2,371	491	20.71	132	26.88
McPherson	1,747	185	10.59	90	48.65
Miner	1,616	200	12.38	82	41.00
Moody	2,428	214	8.81	97	45.33
Roberts	3,868	413	10.68	113	27.36
Spink	3,412	313	9.17	148	47.28

Table C-1 (cont.)

SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	¹ <u>All Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	² <u>Housing Units Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Southeast	81,078	6,322	7.80	3,391	53.64
Aurora	1,484	211	14.22	104	49.29
Bon Homme	2,959	325	10.98	158	48.62
Brule	2,054	252	12.27	112	48.41
Charles Mix	3,408	393	11.53	103	26.21
Clay	3,911	282	7.21	132	46.81
Davison	5,847	400	6.84	283	70.75
Douglas	1,527	144	9.43	51	35.42
Gregory	2,499	304	12.16	187	61.51
Hanson	1,278	144	11.27	54	37.50
Hutchinson	3,588	286	7.97	98	34.27
Jerauld	1,207	139	11.52	72	51.80
Lincoln	4,072	302	7.42	126	41.72
McCook	2,439	216	8.86	91	42.13
Minnehaha	30,329	1,372	4.52	1,073	78.21
Sanborn	1,411	258	18.28	111	43.02
Turner	3,745	430	11.48	148	34.42
Union	3,523	379	10.76	174	45.91
Yankton	5,797	485	8.37	304	62.68
West	68,435	7,716	11.27	4,164	53.97
Bennett	1,002	134	13.37	54	40.30
Buffalo	465	109	23.44	16	14.68
Butte	2,849	283	9.93	161	56.89
Campbell	959	114	11.89	54	47.37
Corson	1,428	148	10.36	70	47.30
Custer	1,817	249	13.70	119	47.79
Dewey	1,549	224	14.46	69	30.80
Fall River	3,194	846	26.49	460	54.37
Haakon	1,011	150	14.84	41	27.33
Harding	616	77	12.50	62	80.52
Hughes	3,765	214	5.68	116	54.21
Hyde	868	109	12.56	46	42.20
Jackson	609	69	11.33	34	49.28
Jones	739	154	20.84	41	26.62
Lawrence	5,922	531	8.97	432	81.36
Lyman	1,326	124	9.35	68	54.84
Meade	4,532	362	7.99	195	53.87
Mellette	832	176	21.15	64	36.36
Pennington	19,673	1,557	7.91	1,183	75.98
Perkins	1,678	176	10.49	100	56.82
Potter	1,493	185	12.39	134	72.43
Shannon	2,114	435	20.58	27	6.21

Table C-1 (cont.)
SUB-STATE AND COUNTY HOUSING VACANCIES AND CONDITION
OLD WEST REGION
1970

<u>State and County</u>	<u>All¹ Housing Units</u>	<u>Housing Units Vacant</u>	<u>Percent of Units Vacant</u>	<u>Housing Units² Vacant With All Plumbing Facilities</u>	<u>Percent of Vacant Units All Plumbing Facilities</u>
Stanley	805	81	10.06	62	76.54
Sully	770	67	8.70	36	53.73
Todd	1,783	302	16.94	146	48.34
Tripp	2,916	423	14.51	140	33.10
Walworth	2,653	242	9.12	192	79.34
Washabaugh	431	117	27.15	15	12.82
Ziebach	636	58	9.12	27	46.55
Wyoming					
East	85,582	7,107	8.30	5,432	76.43
Albany	8,726	725	8.31	425	58.62
Campbell	3,937	208	5.28	167	80.29
Carbon	4,963	655	13.20	522	79.69
Converse	2,247	289	12.86	231	79.93
Crook	1,576	166	10.53	86	51.81
Fremont	8,620	570	6.61	364	63.86
Goshen	3,954	347	8.78	280	80.69
Johnson	2,158	276	12.79	150	54.35
Laramie	19,416	1,550	7.98	1,355	87.42
Natrona	17,228	1,035	6.01	854	82.51
Niobrara	1,330	255	19.17	205	80.39
Platte	2,440	193	7.91	116	60.10
Sheridan	6,799	610	8.97	494	80.98
Weston	2,188	228	10.42	183	80.26
Northwest	16,139	1,684	10.43	1,313	77.97
Big Horn	3,637	349	9.60	286	81.95
Hot Springs	1,940	232	11.96	187	80.60
Park	6,095	561	9.20	417	74.33
Teton	1,882	319	16.95	262	82.13
Washakie	2,585	223	8.63	161	72.20
Southwest	12,851	1,181	9.19	871	73.75
Lincoln	2,849	276	9.69	213	77.17
Sublette	1,291	132	10.22	93	70.45
Sweetwater	6,507	618	9.50	427	69.09
Uinta	2,204	155	7.03	138	89.03

¹ Excludes vacant seasonal and vacant migratory units.

² Derived by subtracting units under person per room with all plumbing facilities from total units with all plumbing facilities.

Source: See Table VII-1, No. 1).

APPENDIX D

DESCRIPTION OF PROCEDURES UTILIZED IN DEVELOPING

HISTORICAL EARNINGS AND EMPLOYMENT DATA

1.0 Introduction

Presented in this appendix (Sections 2.0 and 3.0) is a short description of how the historical earnings (i.e., wages and salaries, other labor income plus proprietors' income) and employment data, contained in Chapter VIII, were determined. Also included in this appendix (Section 4.0), are the historical earnings and employment data by industrial sector for the various 18 sub-State areas. Similar Region and State data are contained in Chapter VIII. Both earnings and employment series were disaggregated into 10 industrial sectors. These sectors are agriculture; mining; construction; manufacturing; transportation, communications and utilities; wholesale and retail trade; finance, insurance and real estate; services; Federal Government; and State and local government. Data points included the years 1950, 1959, 1962, 1968, 1970, 1972, 1973, and 1974 for States and Region data. However, due to a paucity of data, sub-State earnings and employment data are shown only for the years 1968, 1970, and 1972.

Several adjustments were necessary to make the two series consistent. These adjustments along with factors unique to each series are explained below.

2.0 Earnings Data

The earnings data for the Old West Region, State and sub-State areas were obtained from the Bureau of Economic Analysis (BEA), Regional Economics Information System, U.S. Department of Commerce from a special data compilation made April 27, 1975. Data were obtained for selected years between 1950 and 1972. State estimates by industrial sector for the years 1973 and 1974 were developed from growth rates of earnings by sector by State published in the 1974 and 1975 April editions of the Survey of Current Business. These data were shown in constant 1967 dollars, having been deflated by the U.S. Personal Consumption Expenditure Implicit Price Deflator.

Due to disclosure problems of individual firm data, much of the sectorial earnings data were reported as a fraction of the true value for sub-State areas. The BEA provided a coding system whereby the reported value for any given sector was pinpointed within a range of 20 percentage points of the true value (e.g., the reported value was 80 to 99 percent of the true value, or 60 to 79 percent of the true value, etc.). However, total aggregate earnings across all sectors for each sub-State area were reported without disclosure problems. Therefore, given 1) total earnings by sub-State area, 2) reported earnings by sector, with some sectors having disclosure problems, and 3) the coding system indicating in a crude way the percent the reported value was of the true value, it was possible to develop a simple iterative computer program to approximate actual earnings for sector by sub-State area. In addition to

this iterative approximation, sectorial earnings estimates were adjusted as seemed appropriate given 1) employment by sector, and 2) projections of earnings (no disclosure problems) for 1980 and 1985 provided by BEA. Although given the data made available by BEA, it is impossible to determine precisely the magnitude of the errors in our estimates of sectorial earnings, it is believed that these errors are relatively small and essentially insignificant given the requirements of this study. In any event, even if there are slight errors in the earnings data for a given sector, total earnings for the sub-State area are accurate as reported by BEA since these latter data were not subject to any disclosure problems.

3.0 Employment Data

Historical employment data by sector and by sub-State area were obtained largely from the respective States' Departments of Employment Security. These data were supplemented, as required, by employment data by sector for 1968 to 1972 prepared by BEA, and employment data from the Censuses for 1950, 1960 and 1970. The sources of the employment data and the adjustments to the data obtained from the Departments of Employment Security are appropriately footnoted on the tables in Chapter VIII.¹

A general adjustment required in most States was to include military personnel in with Federal Government employment. This was accomplished by using the BEA military earnings series by sub-State area and the time series of the national ratio of military personnel to military earnings.

A second general adjustment to the employment data was required to assure that the employment data conformed to the same industrial sectors as the earnings data. For instance, the Departments of Employment Security report employment data for the 10 major industrial sectors plus a category labeled "other non-agricultural employees." Included in this sector are self-employed, unpaid family and domestic workers. No comprehensive studies are available which suggest how these employees should be allocated across the 10 industrial sectors. However, after consultation with members of several departments it was thought that a reasonable approach would be to allocate these employees as follows:

1. No allocation was made to agriculture, Federal Government, or State and local government;
2. 30 percent was allocated to services, and
3. the remaining 70 percent was allocated across the other six sectors proportional to each sector's percentage share of total employment in the six sectors.

¹ State agricultural employment estimates is the sector most subject to error. Agricultural employment data are based on Bureau of Census estimates, adjusted to an annual average work force definition.

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Several adjustments were necessary to make the two series consistent. These adjustments along with factors unique to each series are explained below.

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Table D-1

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTHEAST MONTANA
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)	Agriculture Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	112.6	7.9	34.8	35.5	48.1	86.1	26.1	74.8	36.3	68.2	580.4
1970	162.9	6.2	38.3	39.5	50.4	92.7	23.9	79.9	80.3	74.2	648.4
1972	178.6	6.4	39.2	37.8	55.0	101.3	28.0	85.2	92.4	85.1	709.0
Sector as Percent of Total Earnings											
1968	19.4	1.3	6.0	6.1	8.3	14.8	4.5	12.9	14.9	11.7	100.0
1970	25.1	1.0	5.9	6.1	7.8	14.3	3.7	12.3	12.4	11.4	100.0
1972	25.2	0.9	5.5	5.3	7.8	14.3	3.9	12.0	13.0	12.0	100.0
Sub-State Sector as Percent of State Sector											
1968	56.4	17.5	32.6	20.7	33.7	33.5	42.9	37.3	58.6	38.1	38.4
1970	55.6	11.7	35.4	22.5	34.2	34.7	40.0	36.8	56.0	37.6	39.0
1972	52.9	12.4	30.2	20.0	33.3	34.4	39.9	36.5	55.8	37.6	37.6
Annual Growth Rate by Sector (in percent)											
1968-1972	12.2	-4.0	3.0	1.6	3.4	4.1	1.8	3.3	1.7	5.7	5.1

1

Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

2

May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-2
EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTHEAST MONTANA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't		State & Local Gov't	Total ²
1968	16.2	1.3	4.5	5.8	7.2	17.8	3.7	17.5	12.4	15.1	101.5	
1970	15.7	1.1	4.6	6.5	7.3	19.9	3.9	17.5	10.8	15.9	103.2	
1972	15.7	1.1	4.6	6.0	7.2	21.5	4.4	18.8	11.1	16.8	107.2	
Sector as Percent of Total Employment												
1968	16.0	1.3	4.4	5.7	7.1	17.5	3.6	17.2	12.2	14.9	100.0	
1970	15.2	1.1	4.5	6.3	7.1	19.3	3.8	17.0	10.5	15.4	100.0	
1972	14.6	1.0	4.3	5.6	6.6	20.1	4.1	17.5	10.4	15.7	100.0	
Sub-State Sector as Percent of State Sector												
1968	45.1	19.7	33.1	21.4	35.1	33.3	42.5	38.8	62.6	38.5	37.6	
1970	45.2	14.7	35.1	23.0	35.4	34.8	41.9	37.2	59.7	38.0	37.2	
1972	45.2	14.9	30.1	21.1	34.4	34.8	42.3	36.9	60.7	37.9	36.7	
Annual Growth Rate by Sector (in percent)												
1968-1972	-0.8	-4.1	0.6	0.9	0.0	4.8	4.4	1.8	-2.7	2.7	1.4	

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add due to rounding.

Source: See Table VIII-6.

Table D-3

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTHEAST MONTANA
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)																						
Agriculture			Mining		Contract Construction		Manufacturing		Transport. Comm. & Utilities		Wholesale & Retail Trade		Finance Insurance & Real Estate		Services		Federal Gov't		State & Local Gov't		Total ²	
1968	59.9	10.6	29.5		40.2	52.6	92.3	19.9	67.6	26.2	54.8	453.8										
1970	103.0	9.6	28.2		45.1	55.0	94.5	19.1	74.0	27.1	60.3	516.5										
1972	123.4	8.8	39.0		50.1	63.4	103.3	22.2	80.4	31.6	69.7	592.0										
Sector as Percent of Total Earnings																						
1968	13.2	2.3	6.5		8.9	11.6	20.3	4.4	14.9	5.8	12.1	100.0										
1970	20.0	1.9	5.5		8.7	10.7	18.3	3.7	14.3	5.2	11.8	100.0										
1972	20.8	1.5	6.6		8.5	10.7	17.5	3.8	13.6	5.3	11.8	100.0										
Sub-State Sector as Percent of State Sector																						
1968	30.0	23.6	27.6		23.5	36.9	35.9	32.7	33.7	17.8	30.7	30.0										
1970	35.2	18.0	26.1		25.7	37.4	35.4	31.8	34.1	18.9	30.8	31.1										
1972	36.6	17.0	30.0		26.4	38.4	35.1	31.7	34.5	19.1	30.8	31.8										
Annual Growth Rate by Sector (in percent)																						

1

Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

2 May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-4

EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTHEAST MONTANA
1968, 1970 and 1972

	<u>Agriculture¹ Mining</u>		<u>Contract Construction</u>	<u>Manufacturing</u>	<u>Transport. Comm. & Utilities</u>	<u>Wholesale & Retail Trade</u>	<u>Finance Insurance & Real Estate</u>	<u>Services</u>	<u>Federal Gov't</u>	<u>State & Local Gov't</u>	<u>Total²</u>
	<u>Employment (in thousands)</u>										
1968	12.7	1.8	4.0	6.5	7.4	19.6	2.8	14.5	3.2	12.2	84.7
1970	12.4	1.4	3.7	7.2	7.5	20.4	3.1	15.3	3.2	13.1	87.3
1972	12.5	1.4	4.9	7.6	7.9	21.6	3.3	16.7	3.2	13.9	93.0
<u>Sector as Percent of Total Employment</u>											
1968	15.0	2.1	4.7	7.7	8.6	23.1	3.3	17.1	3.8	14.4	100.0
1970	14.2	1.6	4.2	8.2	8.6	23.0	3.6	17.5	3.7	15.0	100.0
1972	13.4	1.5	5.3	8.2	8.5	23.3	3.5	17.9	3.4	14.9	100.0
<u>Sub-State Sector as Percent of State Sector</u>											
1968	35.4	27.3	29.4	24.0	36.1	36.6	32.2	32.2	16.2	31.1	31.4
1970	35.7	18.7	28.2	25.5	36.4	35.7	33.3	32.6	17.7	31.3	31.5
1972	36.0	18.9	32.0	26.8	37.8	35.0	31.7	32.8	17.5	31.4	31.8
<u>Annual Growth Rate by Sector (in percent)</u>											
1968-1972	-0.4	-6.1	5.2	4.0	1.6	2.5	4.2	3.6	0.0	3.3	2.4

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-6.

Table D-5

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
WEST MONTANA
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)													
Agriculture		Mining		Contract Construction		Manufacturing	Transport, Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	27.2	26.5	42.5	95.5	41.9	78.8	14.8	58.3	34.6	55.8	475.9		
1970	26.7	37.4	41.5	90.9	41.9	79.6	16.9	63.2	36.0	62.2	496.3		
1972	35.4	36.5	51.7	101.5	46.8	89.5	19.8	67.8	41.5	71.3	561.9		
Sector as Percent of Total Earnings													
1968	5.7	5.6	8.9	20.1	8.8	16.6	3.1	12.2	7.3	11.7	100.0		
1970	5.4	7.5	8.4	18.3	8.4	16.0	3.4	12.7	7.3	12.5	100.0		
1972	6.3	6.5	9.2	18.1	8.3	15.9	3.5	12.1	7.4	12.7	100.0		
Sub-State Sector as Percent of State Sector													
1968	13.6	58.9	39.8	55.8	29.4	30.6	24.4	29.0	23.5	31.2	31.5		
1970	9.1	70.2	38.4	51.8	28.4	29.8	28.2	29.1	25.1	31.5	29.9		
1972	10.5	70.7	39.8	53.6	28.3	30.4	28.3	29.0	25.1	31.5	30.2		
Annual Growth Rate by Sector (in percent)													
1968-1972	6.8	8.3	5.0	1.5	2.8	3.2	7.6	3.9	4.6	6.4	4.2		

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-6

EMPLOYMENT BY
INDUSTRIAL SECTOR
WEST MONTANA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining			Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't		Total ²
1968	7.0	3.5	5.1		14.8	5.9	16.1	2.2	13.1	4.2	11.9		83.8
1970	6.6	5.0	4.8		14.5	5.8	16.9	2.3	14.2	4.1	12.8		87.0
1972	6.5	4.9	5.8		14.8	5.8	18.6	2.7	15.4	4.0	13.6		92.1
Sector as Percent of Total Employment													
1968	8.4	4.2	6.1		17.7	7.0	19.4	2.6	16.3	5.0	14.2		100.0
1970	7.6	5.8	5.5		16.7	6.7	19.2	2.6	16.2	4.7	14.7		100.0
1972	7.1	5.3	6.3		16.1	6.3	20.2	2.9	16.7	4.3	14.8		100.0
Sub-State Sector as Percent of State Sector													
1968	19.5	53.0	37.5		54.6	28.8	30.1	25.3	29.0	25.3	29.0		31.0
1970	19.0	66.7	36.6		51.4	28.1	29.5	24.7	30.2	24.7	30.2		31.3
1972	18.7	66.2	37.9		52.1	27.8	30.1	26.0	30.2	26.0	30.2		31.5
Annual Growth Rate by Sector (in percent)													
1968-1972	-1.8	8.8	3.3		0.0	-0.4	3.7	5.2	4.1	-1.2	3.4		2.4

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-6.

The total value of mineral production in Montana in 1974 was \$576 million (current dollars). Of this amount, copper accounted for \$213 million, or 37 percent of the total, and crude petroleum production accounted for \$203 million, or 35 percent. The value (current dollars) of copper production increased by 7.7 times from 1951 to 1974, and the value of crude petroleum production increased by 9.2 times during the same period. In recent years, there has been a major growth in coal production. For instance, the value of coal production increased from \$12.8 million in 1971 to \$63.4 million in 1974--a five-fold increase in the value of production. However, much of this increase resulted from price increases since coal output increased from 7.1 million short tons in 1971 to 14.1 million short tons in 1974.

In 1972, the West sub-State area accounted for over 66 percent of all mining employment in Montana. This is due primarily to the large Anaconda copper mines in the Butte/Anaconda area. The relative importance of mining in the West is illustrated by the fact that mining's share of employment in this area in 1972 was 5.3 percent, compared to only 2.5 percent in the State as a whole, 1.7 percent in the Region, and 0.8 percent in the nation.

The mining sector is a basic sector in Montana's economy in the sense that it brings money into the State and that it drives other industry sectors. At the same time, the level of mining activity in the State is largely determined by economic forces external to Montana and the Region. Thus, local, national and international demand for and supply of, copper, petroleum and coal are largely responsible for the changes in mining output in Montana.

4.1.3 Contract Construction

Contract construction experienced significant fluctuations in real earnings during the period under review. For instance, earnings increased from \$72 million in 1950 to a peak of \$113 million in 1962. Then earnings dropped to \$107 million in 1968, peaked a second time at \$137 million in 1973, and finally fell to \$133 million in 1974 (see Tables VIII-5 through VIII-7). These fluctuations can be related to several factors including: 1) cyclical fluctuations in national construction activity, 2) construction of major highway and reclamation projects, and 3) expansion or retrenchment in other industrial sectors, such as, mining, manufacturing and TCU. Contract construction's share of total earnings in Montana has ranged from 6.3 to 8.0 percent during the 1950-1974 period. Although slightly higher, this is comparable to contract construction's share of earnings in both the Region and the nation.

Contract construction employment has ranged from a low of 11,500 in 1950 to a high of 16,300 in 1973. The cyclical fluctuations in employment during the 1950-1974 period follow the pattern of earnings. Contract construction's share of total employment in Montana ranged from a low of 4.7 percent to a high of 6.1 percent, which is comparable to contract construction's share in both the Region and the nation.

4.1.4 Manufacturing

Real earnings in manufacturing increased from \$91 million in 1950 to \$187 million in 1974, or 3.0 percent annually, compared to 4.3 percent in the Region and 3.6 percent in the nation. Real earnings in 1973 were \$196 million, \$9 million higher than in 1974. The decline in earnings from 1973 to 1974 reflects a general softening in the national demand for lumber and wood products, and declines in copper prices.

Employment in manufacturing in Montana increased from 19,700 in 1950 to 28,600 in 1974, an annual rate of growth of 1.6 percent. The annual growth rate in employment in Montana for the 1970-1974 period was only 0.4 percent, compared with 1.9 percent during the 1959-1970 period, and 1.7 percent during the 1950-1959 period. Manufacturing's share of total State employment ranged from a low of 8.9 percent to a high of 10.6 percent during the 1950-1974 period. In 1974, manufacturing's share of employment was 9.3 percent, which was slightly less than manufacturing's share in the Region of 10.3 percent, but only one-third of manufacturing's share of 24.5 percent in the nation.

The share of manufacturing employment in 1972 in the three sub-State areas was as follows: Northeast, 5.6 percent; Southeast, 8.2 percent; and West, 16.1 percent. The West area accounts for 52.1 percent of the State's manufacturing employment.

Due to problems of data disclosure, it is not possible to accurately break-out either earnings or employment by type of manufacturing process. However, based upon the earnings data provided by BEA, it appears that roughly 43 percent of total manufacturing earnings in Montana are generated by firms in "other manufacturing" (i.e., paper and allied products, petroleum refining, primary metals, and miscellaneous manufacturing), 37 percent by "lumber and furniture," and 17 percent by "food and kindred products." The largest manufacturing employers were the Anaconda Company (copper mining and smelting), St. Regis Paper Co. (lumber and other wood products), and Hoerner Waldorf Corp. (pulp and other wood products). A significant proportion of major manufacturers are located in the West area and are manufacturers of various wood products.

4.1.5 Transportation, Communications and Utilities (TCU)

Real earnings in TCU in Montana increased from \$117 million in 1950 to \$175 million in 1974, or 1.7 percent per year. The growth rate is below both the Region's rate of 2.2 percent and the national rate of 3.3 percent. However, the annual growth rate in Montana from 1970 through 1974 was 4.5 percent, reflecting partly the operation of new coal-fired electric generating capacity in Southeast Montana. Transportation accounted for approximately 64 percent of total TCU earnings in 1972. Of this amount, railroads accounted for 55 percent, motor freight for 25 percent, and "other" transportation services accounted for 20 percent. Communications accounted for 19 percent of TCU earnings in 1972, and utilities contributed the remaining 17 percent of earnings.¹

¹ Disaggregations by sub-sector in this appendix were obtained from the special BEA computer run provided to the Old West Regional Commission.

Employment in TCU declined from 24,000 in 1950 to 20,500 in 1968, and then increased to 22,800 in 1974 with the major portion of the increase coming in 1973 and 1974. TCU's share of total employment declined from 10.8 percent in 1950 to 7.4 percent in 1974. TCU's share of employment in 1974 was slightly higher in Montana than in both the Region (6.3 percent) and the nation (5.7 percent).

4.1.6 Wholesale and Retail Trade

Real earnings in trade increased from \$199 million in 1950 to \$323 million in 1974, or 2.0 percent per year. Employment in trade increased from 40,200 in 1950 to 69,500 in 1974, or 2.3 percent annually. Consequently, average real earnings (1967 dollars) per employee in trade decreased during the period under review, from \$4,940 to \$4,640. It is surprising that real earnings in the trade sector have not shown substantial growth over the 1950-1974 period. However, given 1) the substantial out-migration experienced by many areas, and 2) the large proportion of jobs which are probably held on a part-time basis, or to supplement family income, it is reasonable to conclude that there has been a "surplus" supply of labor for this sector in many areas. This would tend to bid down the average wage level. Trade is by far the largest employment sector in Montana's economy, accounting for 22.5 percent of employment in 1974.

The demand for wholesale and retail trade is primarily local. Thus, the growth and geographic distribution of this sector tends to parallel the economic growth and development of the communities within Montana. Therefore, it is not surprising to find that the distribution of earnings and employment in the trade sector between the three sub-State areas follows essentially the distribution of total earnings and employment between these areas. However, the Southeast sub-State area has slightly more than its proportionate share. This results from the fact that Billings tends to serve as a sub-regional wholesale and distribution center.

4.1.7 Finance, Insurance and Real Estate (FIRE)

Real earnings in FIRE increased from \$27.7 million in 1950 to \$69.7 million in 1974, or 3.9 percent per year. FIRE's share of total earnings increased from 2.4 percent to 3.5 percent during this same period. FIRE's share of total earnings in Montana in 1974 (3.5 percent) was 15 percent below FIRE's share in the Region, and 33 percent below FIRE's share in the nation.

Employment in FIRE increased from 4,500 in 1950 to 12,100 in 1973, or 4.2 percent annually. In terms of employment, this was the fastest growing sector in Montana during this period. However, since employment was growing faster than earnings, there was a slight decline in average real earnings per employee similar to that occurring in the trade sector.

4.1.8 Services

Real earnings in services increased from \$96 million in 1950 to \$248 million in 1974, an annual growth rate of 4.0 percent. This growth rate was 7 percent below growth of earnings in services in the Region and 23 percent below the national rate of growth. Services' share of earnings increased from 8.4 percent in 1950 to 12.5 percent in 1974. Services' share of earnings in 1974 was 11.6 percent in the Region, and 15.3 percent in the nation.

Employment in services increased steadily from 23,500 in 1950 to 53,300 in 1974, an annual growth rate of 3.5 percent. Services' employment accounted for 17.3 percent of total employment in Montana in 1974, second only to trade as the sector providing the most employment.

Professional services accounted for 70 percent of total earnings in the services sector in 1972, with business services (i.e., lodging places, repair services, amusements and recreation services, personal services, and private household services) accounting for the balance. In 1972, the distribution of earnings and employment in the services sector between the three sub-State areas followed the distribution of total earnings and employment between these areas.

4.1.9 Federal Government

Federal Government's share of real earnings was 8.4 percent in 1974, which was 12 percent higher than Federal Government's share in the Region, and 29 percent more than Federal Government's share in the nation. Growth in real earnings in this sector in Montana increased from \$57 million in 1950 to \$173 million in 1973, but fell to \$168 million in 1974, for an annual growth rate of 4.6 percent from 1950 to 1974.

Employment in the Federal Government sector increased from 10,400 in 1950 to a peak of 19,800 in 1968, then declined to 17,300 in 1974. Federal Government accounted for 5.6 percent of total employment in Montana in 1974, which was comparable to Federal Government's share in the Region, but 70 percent greater than Federal Government's share in the nation.

In 1972, civilian government employment accounted for 67 percent of total earnings, with military personnel accounting for the remainder. Federal Government employment is unevenly distributed between the three sub-State areas. For instance, the Northeast area in 1972 accounted for 56 percent of total Federal Government employment in Montana, with 18 percent in the Southeast area, and 26 percent in the West area.

Federal outlays for Montana in FY 1974 totaled \$1.0 billion (in current dollars). Of this amount, \$310 million (31 percent) was expended by HEW, \$189 million (19 percent) by Defense, and \$166 million (17 percent) by agriculture (see Chapter VI, Table VI-1).

4.1.10 State and Local Government

Real earnings in State and local government increased from \$61 million in 1950 to \$245 million in 1974, or 6.0 percent annually. Earnings growth of this sector was faster than any other sector, and 2.6 times faster than the growth in total earnings in Montana. During this same period, real earnings in State and local government increased annually by 5.5 percent in the Region, and by 6.8 percent in the nation.

State and local government's share of total earnings in Montana increased from 5.3 percent in 1950 to 12.3 percent in 1974. This latter percent is slightly higher than State and local government's share in the Region of 11.0 percent, and the national share of 11.1 percent.

Employment in State and local government increased from 20,000 to 45,200 during the 1950-1974 period, accounting for 14.6 percent of total employment in 1974. During the period under review, the growth rate in earnings was significantly faster than the growth rate in employment (6.0 percent versus 3.5 percent). Consequently, average real earnings (1967 dollars) per employee increased from \$3,040 in 1950 to \$5,420 in 1974, or 2.3 percent per year.

Expenditures by State and local governments in Montana totaled \$640 million (in current dollars) in FY 1973. Of this amount, \$251 million (39 percent) went to education, and \$128 million (20 percent) went for highways (see Chapter VI, Table VI-2).

4.2 Nebraska

Tables D-7 through D-16 present historical earnings and employment data for Nebraska sub-State areas. The following reviews the State economy by sector.

4.2.1 Agriculture

There have been substantial year-to-year variations in real earnings in the agricultural sector during the period 1950-1974 (see Table VIII-8). For instance, real earnings fell from \$804 million in 1950 to \$435 million in 1959. In 1962, real earnings were up to \$503 million, but down to \$497 million in 1968. Real earnings were at an all time high of over \$1.2 billion in 1973, but fell to \$708 million in 1974.

For the period under review, agriculture employment in Nebraska decreased from 155,400 in 1950 to 83,100 in 1974; a decline of 47 percent or 5.5 percent per year. This compares with an annual rate of decline of 2.6 percent in the Region, and of 3 percent in the nation. Agriculture accounted for 11.4 percent of total employment in Nebraska in 1974, down from 28.1 percent in 1950, and 19.9 percent in 1959. Agriculture's share of employment in the Region in 1974 was 12.8 percent, and nationally it was only 4.3 percent.

Table D-7

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
CENTRAL NEBRASKA
1968, 1970 and 1972

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
Real Earnings (in millions of constant 1967 dollars)											
1968	176.5	1.9	35.3	97.4	49.1	130.5	17.7	82.3	24.0	68.5	683.2
1970	220.5	2.1	33.7	91.0	53.2	137.8	19.8	88.5	25.4	83.1	755.1
1972	272.9	2.2	38.6	100.9	58.2	144.3	22.4	95.1	27.1	86.5	848.3
Sector as Percent of Total Earnings											
1968	33.9	0.6	5.3	8.5	7.9	18.6	2.3	10.6	3.9	8.4	100.0
1970	31.1	0.4	6.2	17.2	8.6	23.0	3.1	14.5	4.2	12.1	100.0
1972	29.2	0.3	4.5	12.1	7.0	18.2	2.6	11.7	3.4	11.0	100.0
Sub-State Sector as Percent of State Sector											
1968	35.5	16.3	16.5	16.9	16.8	19.8	8.9	17.3	10.3	19.0	19.4
1970	39.4	17.5	13.9	15.2	16.9	19.6	9.5	16.8	10.1	18.9	19.6
1972	36.4	19.7	14.2	15.5	16.4	19.4	9.6	16.7	9.8	18.8	19.6
Annual Growth Rate by Sector (in percent)											
1968-1972	11.5	3.3	2.3	0.9	4.4	2.5	6.1	3.7	3.1	6.0	5.6

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-8

EMPLOYMENT BY
INDUSTRIAL SECTOR
CENTRAL NEBRASKA
1968, 1970 and 1972

Employment (in thousands)	Sector as Percent of Total Employment			Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	State & Local Gov't		Total ²
	Agriculture ¹	Mining								Federal Gov't	State & Local Gov't	
1968	26.7	0.5		5.5	19.3	7.9	28.2	2.7	19.6	3.7	17.1	131.2
1970	26.4	0.5		5.1	18.1	8.1	30.2	3.0	21.2	3.6	19.6	135.8
1972	27.1	0.5		5.7	18.1	8.1	31.3	3.5	22.8	3.4	19.4	139.9
Sector as Percent of Total Employment												
1968	20.4	0.4		4.2	14.7	6.0	21.5	2.1	14.9	2.8	13.0	100.0
1970	19.4	0.4		3.8	13.3	6.0	22.2	2.2	15.6	2.6	14.4	100.0
1972	19.4	0.4		4.1	12.9	5.8	22.4	2.5	16.3	2.4	13.9	100.0
Sub-State Sector as Percent of State Sector												
1968	32.8	25.0		19.1	20.1	18.7	20.7	9.2	13.5	11.9	21.4	20.7
1970	32.7	25.0		17.0	18.4	18.8	20.7	9.6	18.9	11.8	21.2	20.4
1972	32.8	26.3		18.5	18.0	18.7	20.7	10.5	19.0	11.1	21.0	20.4
Annual Growth Rate by Sector (in percent)												
1968-1972	0.4	0.0		0.9	-1.6	0.6	2.6	6.7	3.9	-2.1	3.2	1.6

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-9.

Table D-9

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
EAST (OMAHA) NEBRASKA
1968, 1970 and 1972

	Agriculture Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
<u>Real Earnings (in millions of constant 1967 dollars)</u>											
1968	59.2	3.2	107.1	309.9	156.0	290.5	119.4	224.1	159.8	117.7	1,547.0
1970	62.5	4.0	125.3	325.1	167.6	318.6	123.4	257.2	171.0	138.6	1,693.3
1972	81.8	4.6	143.8	335.5	187.1	342.1	139.2	278.2	188.9	147.0	1,848.3
<u>Sector as Percent of Total Earnings</u>											
1968	3.8	0.2	6.9	20.0	10.1	18.8	7.7	14.5	3.8	10.3	100.0
1970	3.7	0.2	7.4	19.2	9.9	18.8	7.3	15.2	3.7	10.1	100.0
1972	4.4	0.3	7.8	18.2	10.1	18.5	7.5	15.0	4.4	10.2	100.0
<u>Sub-State Sector as Percent of State Sector</u>											
1968	11.9	26.8	50.1	53.8	53.6	44.1	60.0	47.2	68.6	32.5	44.0
1970	11.2	32.8	51.7	54.3	53.4	45.4	59.2	48.7	67.8	31.5	43.9
1972	10.9	41.4	52.9	51.5	52.8	45.9	59.5	48.9	68.2	32.0	42.8
<u>Annual Growth Rate by Sector (in percent)</u>											
1968-1972	8.4	9.9	7.6	2.0	4.6	4.2	3.9	5.5	4.3	5.7	4.5

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-10
EMPLOYMENT BY
INDUSTRIAL SECTOR
EAST (OMAHA) NEBRASKA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities		Wholesale & Retail Trade	Finance Insurance & Real Estate		Services	Federal Gov't		State & Local Gov't		Total ²
1968	8.2	0.5	12.3	44.8	20.1	55.3	16.6	44.0	21.6	21.5	244.9				
1970	8.0	0.5	13.3	45.8	20.5	60.2	18.0	47.8	21.2	25.4	260.7				
1972	8.3	0.5	14.0	44.1	20.3	62.5	18.8	51.1	21.5	26.2	267.3				
Sector as Percent of Total Employment															
1968	3.3	0.2	5.0	18.3	8.2	22.6	6.8	18.0	8.8	8.8	100.0				
1970	3.1	0.2	5.1	17.6	7.9	23.1	6.9	18.3	8.1	9.7	100.0				
1972	3.1	0.2	5.2	16.5	7.6	23.4	7.0	19.1	8.0	9.8	100.0				
Sub-State Sector as Percent of State Sector															
1968	10.1	25.0	42.7	46.6	47.6	40.6	56.8	41.5	69.5	26.9	38.7				
1970	9.9	25.0	44.3	46.6	47.7	41.3	57.7	42.7	69.3	27.4	39.1				
1972	10.0	26.3	45.5	44.0	46.9	41.4	56.5	42.6	70.0	28.4	38.9				
Annual Growth Rate by Sector (in percent)															
1968-1972	0.3	0.0	3.3	-0.4	0.2	3.1	3.2	3.8	-0.1	5.1	2.2				

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VII-9.

Table D-11

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTHEAST NEBRASKA
1968, 1970 and 1972

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
<u>Real Earnings (in millions of constant 1967 dollars)</u>											
1968	140.3	1.2	15.7	55.1	16.9	74.2	10.7	44.8	13.3	44.6	416.7
1970	132.5	1.3	16.9	60.0	18.2	76.8	11.7	49.7	14.1	54.0	435.4
1972	200.0	1.6	17.3	69.9	20.0	79.3	13.5	52.2	14.8	56.1	524.6
<u>Sector as Percent of Total Earnings</u>											
1968	33.7	0.3	3.8	13.2	4.0	17.8	2.5	10.7	3.2	10.7	100.0
1970	30.4	0.3	3.9	13.8	4.2	17.6	2.7	11.4	3.2	12.4	100.0
1972	38.1	0.3	3.3	13.3	3.8	15.1	2.6	10.0	2.8	10.7	100.0
<u>Sub-State Sector as Percent of State Sector</u>											
1968	28.2	9.9	7.3	9.6	5.8	11.2	5.4	9.4	5.7	12.3	11.8
1970	23.7	10.8	7.0	10.0	5.8	10.9	5.6	9.4	5.6	12.3	11.3
1972	26.6	14.1	6.4	10.7	5.6	10.6	5.8	9.2	5.3	12.2	12.1
<u>Annual Growth Rate by Sector (in percent)</u>											
1968-1972	9.3	7.8	2.4	6.1	4.4	1.7	6.1	3.9	2.7	5.9	5.9

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-12

EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTHEAST NEBRASKA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities		Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't		Total ²
1968	22.2	0.3	2.8	11.7	3.3		17.0	1.8	12.1	1.5	11.1		83.8
1970	22.3	0.3	3.0	12.5	3.3		18.0	1.8	12.8	1.5	12.7		88.2
1972	22.7	0.3	2.8	14.2	3.2		18.0	2.2	13.5	1.4	12.5		90.8
Sector as Percent of Total Employment													
1968	26.5	0.4	3.3	14.0	3.9		20.3	2.1	14.4	1.8	13.2		100.0
1970	25.3	0.3	3.4	14.2	3.7		20.4	2.0	14.5	1.7	14.4		100.0
1972	25.0	0.3	3.1	15.6	3.5		19.8	2.4	14.9	1.5	13.8		100.0
Sub-State Sector as Percent of State Sector													
1968	27.3	15.0	9.7	12.2	7.8		12.5	6.2	11.4	4.8	13.9		13.2
1970	27.6	15.0	10.0	12.7	7.7		12.3	5.8	11.4	4.9	13.7		13.2
1972	27.4	15.8	9.1	14.1	7.4		11.9	6.6	11.2	4.6	13.5		13.2
Annual Growth Rate by Sector (in percent)													
1968-1972	0.6	0.0	0.0	5.0	-0.8		1.4	5.1	2.8	-1.7	3.0		2.0

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-9.

Table D-13

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTHEAST NEBRASKA
1968, 1970 and 1972

	Agriculture		Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
<u>Real Earnings (in millions of constant 1967 dollars)</u>												
1968	92.4	1.0		47.2	98.3	51.7	119.1	45.8	94.9	29.1	109.7	689.3
1970	112.2	1.3		56.2	103.9	56.5	123.9	47.4	102.5	34.2	139.5	777.7
1972	131.4	0.6		57.3	123.4	65.6	132.7	52.4	113.3	38.5	143.7	858.9
<u>Sector as Percent of Total Earnings</u>												
1968	13.4	0.1		6.8	14.3	7.5	17.3	6.6	13.8	4.2	15.9	100.0
1970	14.4	0.2		7.2	13.4	7.3	15.9	6.1	13.2	4.4	17.9	100.0
1972	15.3	0.1		6.7	14.4	7.6	15.5	6.1	13.2	4.5	16.7	100.0
<u>Sub-State Sector as Percent of State Sector</u>												
1968	18.6	8.2		22.1	17.1	17.8	18.1	23.0	20.0	12.5	30.4	19.6
1970	20.0	10.7		23.2	17.4	18.0	17.7	22.8	19.4	13.6	31.7	20.2
1972	17.5	5.7		21.1	18.9	18.5	17.8	22.4	19.9	13.9	31.3	19.9
<u>Annual Growth Rate by Sector (in percent)</u>												
1968-1972	9.2	-10.1		5.0	5.8	6.1	2.7	3.4	4.4	7.2	7.0	5.7

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-14
EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTHEAST NEBRASKA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	15.9	0.1	6.7	17.3	8.0	26.5	7.1	23.5	3.5	25.3	133.9
1970	15.8	0.1	7.1	17.9	8.2	28.0	7.5	23.4	3.6	29.3	140.9
1972	15.8	0.1	6.6	19.7	8.6	29.6	7.9	25.7	3.7	28.8	146.5
Sector as Percent of Total Employment											
1968	11.9	0.1	5.0	12.9	6.0	19.8	5.3	17.5	2.6	18.9	100.0
1970	11.2	0.1	5.0	12.7	5.8	19.9	5.3	16.6	2.6	20.8	100.0
1972	10.8	0.1	4.5	13.4	5.9	20.2	5.4	17.5	2.5	19.7	100.0
Sub-State Sector as Percent of State Sector											
1968	19.6	5.0	23.3	18.0	19.0	19.4	24.3	22.1	11.2	31.6	21.1
1970	19.5	5.0	23.7	18.2	19.1	19.2	24.0	20.9	11.8	31.6	21.1
1972	19.1	5.3	21.4	19.6	19.9	19.6	23.7	21.4	12.1	31.2	21.3
Annual Growth Rate by Sector (in percent)											
1968-1972	-0.2	0.0	-0.4	3.3	1.8	2.8	2.7	2.3	1.4	3.3	2.3

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-9.

Table D-15
REAL EARNINGS¹
BY INDUSTRIAL SECTOR
WEST NEBRASKA
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)	Agriculture Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	28.9	4.6	8.7	15.1	17.6	45.0	5.4	28.5	6.9	20.9	181.6
1970	32.0	3.5	10.0	19.0	18.4	44.2	5.9	29.8	7.4	24.7	195.0
1972	64.5	2.1	14.6	22.0	23.6	46.3	6.3	30.0	7.8	25.8	243.0
Sector as Percent of Total Earnings											
1968	15.9	2.5	4.8	8.3	9.7	24.8	3.0	15.7	3.8	11.5	100.0
1970	16.4	1.8	5.1	9.8	9.5	22.7	3.0	15.3	3.8	12.7	100.0
1972	26.5	0.9	6.0	9.1	9.7	19.0	2.6	12.4	3.2	10.6	100.0
Sub-State Sector as Percent of State Sector											
1968	5.8	38.8	4.0	2.6	6.0	6.8	2.7	6.0	2.9	5.8	5.2
1970	5.7	28.2	4.1	3.2	5.9	6.3	2.8	5.6	2.9	5.6	5.1
1972	8.6	19.0	5.4	3.4	6.7	6.2	2.7	5.3	2.8	5.6	5.6
Annual Growth Rate by Sector (in percent)											
1968-1972	22.2	-17.6	13.9	9.9	7.6	0.7	4.0	1.3	3.1	5.4	7.6

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-16

EMPLOYMENT BY
INDUSTRIAL SECTOR
WEST (PANHANDLE) NEBRASKA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	8.3	5.6	1.5	3.1	2.9	9.3	1.0	6.9	0.8	5.0	39.4
1970	8.3	6.6	1.5	4.0	2.9	9.5	0.9	6.8	0.7	5.6	40.8
1972	8.8	5.5	1.7	4.2	3.1	9.6	0.9	6.9	0.7	5.5	41.9
Sector as Percent of Total Employment											
1968	21.1	1.5	3.8	7.9	7.4	23.6	2.5	17.5	2.0	12.7	100.0
1970	20.3	1.5	3.7	9.8	7.1	23.3	2.2	16.7	1.7	13.7	100.0
1972	21.0	1.2	4.0	10.0	7.4	22.9	2.1	16.5	1.7	13.4	100.0
Sub-State Sector as Percent of State Sector											
1968	10.2	30.0	5.2	3.2	6.9	6.8	3.4	6.5	2.6	6.3	6.2
1970	10.3	30.0	5.7	4.1	6.7	6.6	2.9	6.2	2.3	6.0	6.1
1972	10.6	26.3	5.5	4.2	7.1	6.4	2.7	5.8	2.3	6.0	6.1
Annual Growth Rate by Sector (in percent)											
1958-1972	1.5	-4.5	3.2	7.9	1.7	0.8	-2.6	0.0	-3.3	2.4	1.5

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-9.

The total value of all crops harvested in Nebraska in 1973 was \$2.4 billion (current dollars). Of this amount, \$1.2 billion (51 percent) was corn, wheat accounted for \$342 million (14 percent), sorghum accounted for \$279 million, hay accounted for \$244 million, and soybeans accounted for \$192 million (see Chapter IV).

The distribution of agricultural employment for 1972 between the five sub-State areas was as follows: Central, 32.8 percent; East (Omaha), 10 percent; Northeast, 27.4 percent; Southeast, 19.1 percent; West (Panhandle), 10.6 percent. In 1972, agriculture's share of total employment was 19.4 percent in the Central sub-State area, 3.1 percent in the East (Omaha) area, 25.0 percent in the Northeast, 10.8 percent in the Southeast, and 21.0 percent in the West (Panhandle).

4.2.2 Mining

Mining represents a relatively small industrial sector in Nebraska. For instance, in 1974 mining accounted for only 0.3 percent of total earnings and 0.3 percent of total employment. The total value of mineral production in Nebraska in 1974 was \$99 million. Of this amount, crude petroleum production accounted for \$44 million (44 percent), and sand and gravel accounted for 19 percent (see Chapter IV).

4.2.3 Contract Construction

Real earnings in contract construction increased from \$117 million in 1950 to \$287 million in 1974, or 3.8 percent per year. Contract construction's share of total earnings in Nebraska ranged from 5 percent to 7 percent during the 1950-1974 period. These share ratios tend to be slightly lower than those for the Region and slightly higher than the corresponding ratios for the nation.

Contract construction employment in Nebraska increased from 23,600 in 1950 to 34,600 in 1974, an annual growth of 1.6 percent. Employment in contract construction in Nebraska accounted for 4.8 percent of total employment in 1974. The distribution of contract construction employment in 1972 between the five sub-State areas was generally consistent with the distribution of total employment between these areas, except that the East (Omaha) had slightly more than its proportionate share.

4.2.4 Manufacturing

Real earnings in manufacturing increased from \$228 million in 1950 to \$690 million in 1974, an annual growth of 4.7 percent, compared to 4.3 percent in the Region and 3.6 percent in the nation. Real earnings in 1973 were also \$690 million, reflecting the national recession.

Employment in manufacturing in Nebraska increased from 64,600 in 1950 to 106,000 in 1974, or 2.1 percent per year. The Region's growth in manufacturing employment during this same period was also 2.1 percent per year, and the national annual growth rate was only 1.1 percent. Thus, Nebraska's manufacturing sector has demonstrated significant strength during this period. Manufacturing's share of total State employment increased from 11.7 percent in 1950 to 14.6 percent in 1974. Manufacturing's share of employment in Nebraska in 1974 was 42 percent greater than manufacturing's share of employment in the Region, but 40 percent below manufacturing's share of employment in the nation.

In 1972, the distribution of manufacturing employment between the five sub-State areas was as follows: Central, 18 percent; East (Omaha), 44 percent; Northeast, 14.1 percent; Southeast, 19.6 percent; West (Panhandle), 4.2 percent. Manufacturing's share of employment ranged from a low of 10 percent of total employment in the West (Panhandle) to a high of 16.5 percent in the East (Omaha). Thus, manufacturing's share of employment across all sub-State areas ranges from 30 to 60 percent below manufacturing's share of employment in the nation. Nevertheless, manufacturing's share of employment even in West Nebraska was at least equal to manufacturing's share of employment in the Region as a whole.

Roughly 29 percent of total manufacturing earnings in Nebraska in 1972 were generated by "food and kindred products" firms, 17 percent by firms producing electrical machinery, and 16 percent by firms categorized as "other machinery, fabricated metals and ordinances." Firms with 1,000 or more employees in 1974 included: Wickes Corp., Behlen Manufacturing Division in Columbus; the Limel Corp., Dale Electronics, Inc., Division in Columbus; the Iowa Beef Processors in Dakota City; the Hormal (George A.) & Company in Fremont; the Alaska Interstate Co., Lockwood Corp., Division in Gering; the Goodyear Tire and Rubber Company in Lincoln; the American Beef Packers, Inc. in Omaha; the Campbell Soup Company in Omaha; the Sperry-Rand Corp., Sperry Vickers Division in Omaha; the Western Electric Company in Omaha; the Wilson & Company in Omaha; and the Great Western Sugar Company in Scottsbluff.

4.2.5 Transportation, Communications and Utilities (TCU)

Real earnings in TCU in Nebraska increased from \$204 million in 1950 to \$376 million in 1974, or 2.6 percent annually. This rate of growth is slightly faster than that experienced by the Region but slightly lower than that of the nation during this same period. Employment in TCU in Nebraska declined from 50,800 in 1950 to a low of 42,200 in 1968. However by 1974, employment had reached 46,600. TCU's share of total employment in Nebraska was 6.4 percent in 1974. This is essentially equivalent to TCU's share of employment in the Region and slightly higher than TCU's share of employment in the nation.

Transportation accounted for approximately 67 percent of total TCU earnings in 1972. The distribution of TCU earnings and employment in 1972 between the five sub-State areas generally followed the distribution of total earnings and employment between these areas, except that the East (Omaha) had significantly more and the Northeast had significantly less than its proportionate share of earnings and employment.

4.2.6 Wholesale and Retail Trade

Real earnings in trade increased from \$445 million in 1950 to \$801 million in 1974, or 2.5 percent per year. Employment in trade increased from 105,700 in 1950 to 162,600 in 1974, or 1.8 percent annually. In 1974, trade accounted for 22.3 percent of total employment in Nebraska and was by far the largest sector in terms of employment. Because the demand for wholesale and retail trade is primarily local, it is not surprising to find that the distribution of 1972 earnings and employment in the trade sector between the five sub-State areas followed essentially the distribution of total earnings and employment. However, the East (Omaha) had slightly more than its proportionate share. Omaha tends to serve as a regional wholesale and distribution center.

4.2.7 Finance, Insurance and Real Estate (FIRE)

Real earnings in FIRE increased from \$90 million in 1950 to \$242 million in 1974, an annual increase of 4.2 percent. FIRE's share of total earnings increased from 3.9 percent to 5.5 percent during the study period. In 1974, this was 34 percent greater than FIRE's share in the Region and 6 percent greater than FIRE's share in the nation.

Employment in FIRE increased from 21,600 in 1950 to 37,000 in 1974, an annual growth rate of 2.3 percent. In 1972, the East (Omaha) sub-State area accounted for 56.5 percent of total employment in FIRE, reflecting the relatively large financial institutions located in the Omaha area. In 1972, the East (Omaha) area accounted for only 38.9 percent of the total employment in the State.

4.2.8 Services

Real earnings in services increased from \$201 million in 1950 to \$561 million in 1974, or 4.4 percent annually. This is the third fastest growing sector in the State during this period. The rate of growth of the services sector in Nebraska was slightly higher than that in the Region. Employment in the services sector increased from 64,500 in 1950 to 128,000 in 1974, or 2.9 percent per year. Services' employment accounted for 17.6 percent of total employment in Nebraska in 1974. This compares with 17.1 percent in the Region and 16.5 percent in the nation.

Professional services accounted for 68 percent of total earnings in the services sector in 1972, with business services (i.e., lodging places, repair services, amusements and recreation services, personal services, and private household services) accounting for the balance. The distribution of earnings and employment in 1972 in the services sector between the five sub-State areas in general followed the distribution of total earnings and employment between these areas.

4.2.9 Federal Government

Federal Government's share of real earnings was 6.0 percent in 1974, or 20 percent below Federal Government's share of earnings in the Region, and 9 percent less than Federal Government's share in the nation. Real earnings increased from \$101 million in 1950 to \$277 million in 1973, but fell to \$265 million in 1974, for an annual growth rate of 4.1 percent from 1950 to 1974.

Employment in Federal Government increased from 21,000 in 1950 to 33,700 in 1962, but then maintained a level of approximately 30,000 through 1974. The Federal Government sector accounted for 4.1 percent of total employment in Nebraska in 1974. This is approximately 25 percent below Federal Government's share of employment in the Region, but 25 percent greater than Federal Government's share of employment in the nation.

In 1972, civilian government employment accounted for 56 percent of total earnings in the Federal Government sector, with military personnel accounting for the remainder. Federal Government employment is unevenly distributed between five sub-State areas. For instance, East (Omaha) accounted for 70 percent of total Federal Government employment in Nebraska.

Federal outlays in Nebraska in FY 1974 totaled \$1.7 billion (current dollars). Of this amount, \$630 million or 36 percent was expended by HEW, \$285 million (16 percent) was expended by the Department of Agriculture, and \$276 million (15 percent) was expended by the Department of Defense (see Chapter IV, Table IV-1).

4.2.10 State and Local Government

Real earnings in State and local government increased from \$130 million in 1950 to \$491 million in 1974, or 5.7 percent per year. This growth rate was faster than for any other sector, and 2.1 times faster than the rate of growth of total earnings in Nebraska. This growth rate in real earnings in State and local government is essentially equivalent to that experienced in the Region as a whole, but 16 percent below that experienced by this sector in the nation. State and local government's share of total earnings in Nebraska increased from 5.6 percent in 1950 to 11.1 percent in 1974. This latter percent was essentially equivalent to State and local government's share in the Region and the nation.

Employment in State and local government increased from 44,600 in 1950 to 97,700 in 1974, or 3.3 percent per year. In 1970 this sector accounted for 13.4 percent of total employment in Nebraska. This share ratio was slightly higher than that accounted for by this sector in both the Region and in the nation. Average real earnings per employee in this sector increased from \$2,900 in 1950 to \$5,000 in 1974, an annual increase 2.3 percent. The distribution of earnings and employment in 1972 between the five sub-State areas followed the general distribution of total earnings and employment between these areas. However, the East (Omaha) area had less than its proportionate share of State and local government; whereas, the Southeast area--principally because of the University at Lincoln--had a larger than proportionate share of earnings and employment in this sector. Expenditures by State and local governments in Nebraska totaled \$1.1 billion (current dollars) in FY 1973. Of this amount, \$464 million (41 percent) went to education, and \$285 million (25 percent) went for highways. (See Chapter VI).

4.3 North Dakota

Tables D-17 through D-24 present historical employment and earnings data for North Dakota sub-State areas. The following reviews the State economy by sector.

4.3.1 Agriculture

Real earnings fell from \$415 million in 1950 to \$169 million in 1959. In 1962, real earnings were up to \$472 million, but fell to \$228 million in 1970. Real earnings were at an all time high of about \$1.2 billion in 1973, but had fallen to \$799 million in 1974.

For the period under review, agricultural employment in North Dakota decreased from 98,800 in 1950 to 43,500 in 1974; a decline of 66 percent or an annual rate of 3.4 percent. This compares with an annual rate of decline of 2.6 percent in the Region, and of 3 percent in the nation. Since 1970, employment in agriculture seems to have stabilized. Agriculture accounted for 43.9 percent of total employment in North Dakota in 1950, but fell to only 15.3 percent in 1974. Agriculture's share of employment in the Region in 1974 was 12.8 percent, and nationally it was only 4.3 percent.

The total value of all crops harvested in North Dakota in 1973 was \$1.8 billion (current dollars). Of this amount, \$1.2 billion (65 percent) was wheat (see Chapter IV).

Agriculture's share of total employment was 15.3 percent in the Northeast sub-State area, 16.2 percent in Northwest, 15.2 percent in Southeast, and 18.6 percent in Southwest. These share ratios for 1972 compare with 16.2 percent for the State as a whole, 13.6 for the Region, and only 4.5 percent for the nation.

Table D-17
REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTHEAST NORTH DAKOTA
1968, 1970 and 1972

	Contract			Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	State &	
	Agriculture	Mining	Construction						Federal Gov't	Local Gov't
Real Earnings (in millions of constant 1967 dollars)										
1968	55.5	0.8	14.5	12.2	17.4	50.4	8.9	32.4	52.5	38.8
1970	54.7	0.7	33.1	14.4	17.5	52.7	8.7	33.7	56.5	43.6
1972	69.6	0.6	47.5	18.1	20.9	59.2	11.7	40.0	67.1	47.8
Sector as Percent of Total Earnings										
1968	19.6	0.3	5.1	4.3	6.1	17.8	3.1	11.4	18.5	13.7
1970	17.3	0.2	10.5	4.5	5.5	16.7	2.8	10.7	17.9	13.8
1972	18.2	0.2	12.4	4.7	5.4	15.5	3.1	10.5	17.5	12.5
Sub-State Sector as Percent of State Sector										
1968	23.6	5.5	20.0	21.9	18.6	20.1	17.9	20.1	35.6	25.7
1970	23.9	5.6	34.6	21.2	17.7	20.5	17.9	19.7	35.1	25.9
1972	20.4	4.8	40.0	23.6	19.0	21.7	20.6	20.8	36.4	25.9
Annual Growth Rate by Sector (in percent)										
1968-1972	5.8	-5.8	34.6	10.3	4.7	4.1	7.1	5.4	6.3	5.4
										7.8

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-18

EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTHEAST NORTH DAKOTA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining			Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
	Agriculture	Mining										
1968	10.9	0.2		1.9	2.6	2.8	10.9	1.3	8.5	8.1	10.5	57.7
1970	10.2	0.1		4.1	3.0	2.7	11.8	1.3	8.4	8.2	11.1	60.9
1972	9.9	0.1		5.3	3.0	2.8	12.5	1.6	9.6	8.8	11.1	64.7
Sector as Percent of Total Employment												
1968	18.9	0.3		3.3	4.5	4.8	18.9	2.2	14.7	14.0	18.2	100.0
1970	16.8	0.2		6.7	4.9	4.4	19.4	2.1	13.8	13.5	18.2	100.0
1972	15.3	0.2		8.2	4.6	4.3	19.3	2.5	14.8	13.6	17.1	100.0
Sub-State Sector as Percent of State Sector												
1968	23.0	8.3		18.8	24.8	19.3	20.8	17.3	21.3	37.0	24.7	23.2
1970	22.9	5.3		33.3	24.6	18.2	21.2	16.3	20.6	37.1	24.7	23.7
1972	23.0	5.0		37.3	23.3	19.2	21.6	18.6	21.1	36.2	24.7	24.3
Annual Growth Rate by Sector (in percent)												
1968-1972	-2.4	-15.9		29.2	3.6	0.0	3.5	5.3	3.1	2.1	1.4	2.9

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-12.

Table D-19
REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTHWEST NORTH DAKOTA
1968, 1970 and 1972

	Contract			Transport.		Finance		Federal		State &	
	Agriculture	Mining	Construction	Manufacturing	Utilities & Comm.	Wholesale & Retail Trade	Insurance & Real Estate	Services	Gov't	Local Gov't	Total ²
Real Earnings (in millions of constant 1967 dollars)											
1968	42.3	10.3	14.4	11.1	21.8	47.7	7.2	32.5	53.4	26.1	266.9
1970	29.6	7.8	13.0	13.7	22.3	48.0	7.2	33.0	56.8	28.5	260.0
1972	48.2	7.4	16.0	10.5	23.7	50.1	7.6	35.7	64.3	31.4	295.0
Sector as Percent of Total Earnings											
1968	15.9	3.9	5.4	4.2	8.2	17.9	2.7	12.2	20.0	9.8	100.0
1970	11.4	3.0	5.0	5.3	8.7	18.4	2.8	12.7	21.9	11.0	100.0
1972	16.3	2.5	5.4	3.6	8.0	17.0	2.6	12.1	21.8	10.7	100.0
Sub-State Sector as Percent of State Sector											
1968	18.0	72.0	19.9	19.9	23.3	19.1	14.5	20.2	36.2	17.2	21.7
1970	12.9	58.8	13.6	20.3	22.7	18.6	14.8	19.3	35.4	16.9	19.8
1972	14.1	57.9	13.5	13.7	21.6	18.3	13.4	18.6	34.9	17.0	19.0
Annual Growth Rate by Sector (in percent)											
1968-1972	3.3	-7.8	2.7	-1.5	2.1	1.2	1.4	2.4	4.7	4.8	2.5

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-20
EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTHWEST NORTH DAKOTA
1968, 1970 and 1972

	Agriculture ¹		Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
<u>Employment (in thousands)</u>												
1968	9.8	1.6	1.9	1.8	3.4	10.6	1.2	7.5	8.3	8.0	54.1	
1970	9.3	1.2	1.7	2.1	3.4	11.1	1.4	7.8	8.1	3.1	54.8	
1972	9.0	1.3	2.0	1.9	3.1	11.4	1.1	8.6	8.6	8.4	55.7	
<u>Sector as Percent of Total Employment</u>												
1968	18.1	3.0	3.5	3.3	6.3	19.6	2.2	13.3	15.3	14.8	100.0	
1970	17.0	2.2	3.1	3.8	6.2	20.3	2.5	14.2	15.3	15.3	100.0	
1972	16.2	2.3	3.6	3.4	5.6	20.5	2.5	15.4	15.4	15.1	100.0	
<u>Sub-State Sector as Percent of State Sector</u>												
1968	20.7	66.7	18.8	17.1	23.4	20.2	16.0	18.8	38.0	18.8	21.7	
1970	20.8	63.2	13.8	17.2	23.0	19.9	17.5	19.2	38.0	18.7	21.3	
1972	20.9	65.0	14.1	14.7	21.2	19.7	16.3	18.9	35.4	19.1	20.9	
<u>Annual Growth Rate by Sector (in percent)</u>												
1968-1972	-2.1	-5.1	1.3	1.4	-2.3	1.8	3.9	3.5	0.9	1.2	0.7	

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-12.

Table D-21

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTHEAST NORTH DAKOTA
1968, 1970 and 1972

	Real Earnings (in millions of constant 1967 dollars)			Contract		Manufacturing		Transport.		Wholesale		Finance		Services		Federal		State &	
	Agriculture	Mining		Construction				Comm. & Utilities		& Retail Trade		Insurance & Real Estate				Gov't.		Local Gov't.	Total ²
1968	81.0	0.1		26.1		21.8		33.4		99.1		23.0		60.5		25.1		51.1	421.2
1970	81.1	0.2		29.3		24.5		35.0		101.0		23.2		65.3		28.7		57.0	445.4
1972	125.8	0.4		33.0		30.0		38.3		106.0		26.7		70.7		32.0		62.6	525.4
Sector as Percent of Total Earnings																			
1968	19.2	0.03		6.2		5.2		7.9		23.5		5.5		14.4		6.0		12.1	100.0
1970	18.2	0.04		6.6		5.5		7.8		22.7		5.2		14.7		6.5		12.8	100.0
1972	23.9	0.08		6.3		5.7		7.3		20.2		5.1		13.4		6.1		11.9	100.0
Sub-State Sector as Percent of State Sector																			
1968	34.5	0.9		36.1		39.0		35.7		39.7		46.3		37.6		17.0		33.8	34.2
1970	35.5	1.4		30.6		36.2		35.6		39.3		47.8		38.1		17.9		33.9	34.0
1972	36.9	3.2		27.8		39.1		34.8		38.8		46.9		36.9		17.3		33.8	33.9

Annual Growth Rate by Sector (in percent)

1968-1972	11.6	33.6		6.0		8.3		3.5		1.7		3.8		4.0		6.3		5.2	5.7
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¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-22
EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTHEAST NORTH DAKOTA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	14.7	0.02	3.7	3.9	5.0	19.8	3.4	14.5	3.3	13.9	82.2
1970	13.8	0.03	3.7	4.3	5.1	20.7	3.7	14.8	3.4	14.8	84.3
1972	13.2	0.04	4.0	4.9	4.9	21.4	3.8	16.5	3.4	14.8	86.9
Sector as Percent of Total Employment											
1968	17.9	0.02	4.5	4.7	6.1	24.1	4.1	17.6	4.0	16.9	100.0
1970	16.4	0.04	4.4	5.1	6.1	24.5	4.4	17.6	4.0	17.6	100.0
1972	15.2	0.05	4.6	5.6	5.6	24.6	4.4	19.0	3.9	17.0	100.0
Sub-State Sector as Percent of State Sector											
1968	31.1	0.8	36.6	37.1	34.5	37.8	45.3	36.4	15.1	32.7	33.0
1970	30.9	1.6	30.1	35.2	34.4	37.2	46.2	36.4	15.4	33.0	32.8
1972	30.6	2.0	28.2	38.0	33.6	37.0	44.2	36.3	14.0	33.0	32.6
Annual Growth Rate by Sector (in percent)											
1968-1972	-2.7	18.9	2.0	5.9	-0.5	2.0	2.8	3.3	0.7	1.6	1.4

¹ Based on Bureau of Census estimates, adjusted to an annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-12.

Table D-23

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTHWEST NORTH DAKOTA
1968, 1970 and 1972

	Contract			Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal & Local		Total ²
	Agriculture	Mining	Construction						Gov't	Gov't	
Real Earnings (in millions of constant 1967 dollars)											
1968	56.1	3.1	17.3	10.8	20.9	52.7	10.5	35.6	16.6	35.2	258.9
1970	63.0	4.5	20.1	15.1	23.4	55.6	9.5	39.3	18.6	39.2	288.4
1972	97.1	4.4	22.1	18.0	27.1	57.8	10.8	45.4	21.0	43.1	346.9
Sector as Percent of Total Earnings											
1968	21.7	1.2	6.7	4.2	8.1	20.4	4.1	13.7	6.4	13.6	100.0
1970	21.8	1.6	7.0	5.2	8.1	19.3	3.3	13.6	6.5	13.6	100.0
1972	28.0	1.3	6.4	5.2	7.8	16.7	3.1	13.1	6.1	12.4	100.0
Sub-State Sector as Percent of State Sector											
1968	23.9	21.6	24.0	19.3	22.3	21.1	21.2	22.1	11.2	23.3	21.0
1970	27.6	34.2	21.1	22.3	23.8	21.6	19.5	22.9	11.6	23.3	22.0
1972	28.5	34.1	18.6	23.5	24.6	21.2	19.1	23.7	11.4	23.3	22.4
Annual Growth Rate by Sector (in percent)											
1968-1972	14.7	9.2	6.3	13.7	6.7	2.4	0.7	6.3	6.1	5.2	7.6

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-24
EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTHWEST NORTH DAKOTA
1968, 1970 and 1972

Employment (in thousands)	Agriculture ¹ Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	11.9	0.6	2.6	2.2	3.3	11.1	1.6	9.3	2.2	10.1	54.9
1970	11.3	0.6	2.8	2.8	3.6	12.1	1.6	9.7	2.1	10.6	57.2
1972	11.0	0.6	2.9	3.1	3.8	12.5	1.8	10.7	2.1	10.6	59.1
Sector as Percent of Total Employment											
1968	21.7	1.1	4.7	4.0	6.0	20.2	2.9	17.0	4.0	18.4	100.0
1970	19.8	1.1	4.9	4.9	6.3	21.1	2.8	17.0	3.7	18.5	100.0
1972	18.6	1.0	4.9	5.2	6.4	21.1	3.0	18.1	3.6	17.9	100.0
Sub-State Sector as Percent of State Sector											
1968	25.2	25.0	25.7	20.9	22.7	21.2	21.3	23.4	10.0	23.8	22.1
1970	25.3	31.6	22.8	23.0	24.3	21.7	20.0	23.8	9.5	23.6	22.2
1972	25.5	30.0	20.4	24.0	26.0	21.6	20.9	23.6	8.6	23.6	22.2
Annual Growth Rate by Sector (in percent)											
1968-1972	-1.9	0.0	2.8	9.0	3.6	3.0	3.0	3.6	-1.2	1.2	1.9

¹ Based on Bureau of Census estimates, adjusted to annual average work force definition.

² May not add to 100.0 due to rounding.

Source: See Table VIII-12.

4.3.2 Mining

During the 1950-1974 period, real earnings in mining ranged from a low of \$5.8 million in 1950, to a high of \$17.3 million in 1959. In 1974 real earnings in mining were \$15.5 million, and accounted for 0.8 only percent of total earnings in North Dakota. Employment in mining has experienced fluctuations similar to the ups-and-downs in earnings. For instance, mining employment ranged from 900 in 1950 to 2,800 in 1959, and in 1974 employment was 2,000. Mining's share of total employment in North Dakota was only 0.7 percent in 1974. Thus, mining is a relatively minor sector in North Dakota.

4.3.3 Contract Construction

Real earnings in contract construction have experienced significant fluctuations. For instance, earnings increased from \$54 million in 1950 to \$86 million in 1962, then fell to \$72 million in 1968. Real earnings were up to \$119 million in 1972, and then fell to \$111 million in 1973. These fluctuations can be related to several factors including: 1) cyclical fluctuations in national construction activity, 2) construction of major highways and reclamation projects, and 3) expansion or retrenchment in other industrial sectors. Contract construction's share of total earnings in North Dakota ranged from 4.6 percent to 8.7 percent. The average share ratios are roughly comparable to contract construction's earnings share ratios in both the Region and the nation.

Contract construction employment increased from 9,500 in 1950 to a high of 14,500 in 1974. During the 1950-1974 period, contract construction's share of total employment in North Dakota ranged from a low of 4.1 percent in 1968 to a high of 6.2 percent in 1959 and 1962. The Northeast area had 37.3 percent of the State's contract construction employment compared to only 24.3 percent of the State's total employment. This is due to the fact that there was a larger water development and land reclamation project under construction in this area during 1972.

4.3.4 Manufacturing

Real earnings in manufacturing increased from \$26 million in 1950 to \$98 million in 1974, or 5.7 percent per year. This is compared to 4.3 percent in the Region and 3.6 percent in the nation.

Employment in manufacturing in North Dakota increased from 7,100 in 1950 to 16,900 in 1974, or 3.7 percent annually. This is compared to a growth rate of only 2.1 percent in the Region and 1.1 percent in the nation. In addition, the annual growth rate in manufacturing employment in North Dakota was at a very healthy rate of 8.5 percent during the 1970-1974 period. Manufacturing's share of total employment increased from 3.1 percent in 1950 to 6 percent in 1974. However, this is 42 percent below manufacturing's share of employment in the Region, and 75 percent below manufacturing's share of employment in the nation. Thus, manufacturing remains a relatively small sector in the economy of North Dakota, even though it has experienced very rapid growth during recent year. In 1972,

roughly 33 percent of total manufacturing earnings in North Dakota were generated by "food and kindred products" firms, 26 percent were generated by "other manufacturing" (i.e., paper and allied products, petroleum refining, primary metals, and miscellaneous manufacturing) firms, and 23 percent were generated by "machine manufacturing" firms.

Of the 16 firms with 100 or more employees in 1974, 5 were "food and kindred products," and 6 were in "machinery, transportation equipment and other manufacturing." There is only one petroleum refinery (located in Mandan) which appears on a State list of firms with 100 or more employees.

4.3.5 Transportation, Communications and Utilities (TCU)

Real earnings in TCU increased from \$74 million in 1950 to \$114 million in 1974, an annual growth rate of 1.8 percent. This growth rate is significantly below that of the Region (2.2 percent) and the nation (3.3 percent). However, the annual growth rate of TCU in North Dakota from 1970 through 1974 was 3.8 percent.

Employment in TCU declined from 16,500 in 1950 to a low of 14,500 in 1968, but increased to 15,500 in 1974. TCU's share of total employment declined from 7.3 percent in 1950 to 5.5 percent in 1974. This is slightly below the Region's share ratio of 6.3, but is essentially equivalent to the national share ratio of 5.7 percent. Transportation accounted for approximately 55 percent of total TCU earnings in 1972.

4.3.6 Wholesale and Retail Trade

Real earnings in trade increased from \$185 million in 1950 to \$312 million in 1974, or 2.2 percent per year. Employment in trade increased from 42,200 in 1950 to 63,100 in 1974, or 1.7 percent per year. However, both employment and earnings grew at more than twice the 1950-1970 rate during the 1970-1974 period. Trade is by far the largest employing sector in North Dakota's economy, accounting for 22.2 percent of total employment in 1974. The larger share of employment over earnings reflects the relatively low wage levels in this sector.

4.3.7 Finance, Insurance and Real Estate (FIRE)

Real earnings in FIRE increased from \$18 million in 1950 to \$56 million in 1974, or 5.0 percent per year. FIRE's share of total earnings increased from 1.9 percent in 1950 to a high of 4.0 percent in 1968, but fell to 2.7 percent in 1974. FIRE's share of total earnings in North Dakota in 1974 was 34 percent below FIRE's share of earnings in the Region, and 48 percent below FIRE's share of earnings in the nation.

Employment in FIRE increased from 5,000 in 1950 to 9,800 in 1974, or 2.8 percent per year. FIRE accounted for 3.5 percent of total employment in North Dakota in 1974.

4.3.8 Services

Real earnings in services increased from \$64 million in 1950 to \$189 million in 1974, an annual growth rate of 4.6 percent. Services' share of total earnings in 1974 was 9.2 percent, which was 40 percent below services' share of earnings in the nation.

Employment in services increased from 19,900 in 1950 to 48,600 in 1974, an annual growth of 3.8 percent. However, during the 1970-1974 period, employment increased at an annual rate of 4.5 percent. Services' employment accounted for 17.1 percent of total employment in North Dakota in 1974, second only to trade as the sector providing the most employment.

Professional services accounted for 73 percent of total earnings in the services sector in 1972, with business services (i.e., lodging places, repair services, amusements and recreation services, personal services, and private household services) accounting for the balance.

4.3.9 Federal Government

Federal Government's share of real earnings was 8.8 percent in 1974, which was 17 percent greater than Federal Government's share of earnings in the Region and 35 percent greater than Federal Government's share of earnings in the nation as a whole. Growth of real earnings in this sector increased from \$44 million in 1950 to \$180 million in 1974, or 6.0 percent per year. This sector was the fastest growing sector in North Dakota during the 1950-1974 period.

Employment in the Federal Government sector increased from 7,000 in 1950 to 24,300 in 1974, an annual growth of 5.3 percent. Federal Government accounted for 8.6 percent of total employment in North Dakota in 1974. This compares to Federal Government's share of employment in the Region of only 5.6 percent and in the nation of only 3.3 percent.

In 1972, civilian government employment accounted for 44 percent of total earnings, with military personnel accounting for the remainder. Federal Government employment is unevenly distributed between the four sub-State areas. For instance, the Northeast accounted for 36.2 percent of total Federal Government employment in North Dakota and the Northwest accounted for 35.4 percent.

Federal outlays on North Dakota in FY 1974 totaled \$1 billion (current dollars). Of this amount, \$282 million (28 percent) was expended by Defense, \$271 million (27 percent) was expended by HEW, and \$173 million (17 percent) was spent by Agriculture (see Chapter VI, Table VI-1).

4.3.10 State and Local Government

Real earnings in State and local government increased from \$57 million in 1950 to \$174 million in 1974, a rate of 4.7 percent per year. State and local government's share of total earnings in North Dakota increased from 6.1 percent in 1950 to 8.5 percent in 1974. The latter is substantially lower than State and local government's share in the Region of 11.0 percent, and the national share of 11.1 percent, in 1974. However, in 1970 State and local government's share of total earnings in North Dakota was 12.9 percent.

Employment in State and local government increased from 18,200 in 1950 to 45,700 in 1974, annual growth of 3.9 percent. State and local government accounted for 16.1 percent of total employment in North Dakota in 1974. This is roughly 10 percent greater than State and local government's share in the Region and in the nation. During the period under review, the rate of growth in earnings was faster than that in employment (4.7 percent compared to only 3.9 percent, respectively). Consequently, average real earnings in this sector increased at a rate of almost 1 percent per year.

Expenditures by State and local governments in North Dakota totaled \$515 million (current dollars) in FY 1973. Of this amount, \$213 million (41 percent) went to education, and \$100 million (19 percent) went for highways (see Chapter VI).

4.4 South Dakota

Tables D-25 through D-30 present historical earnings and employment data for South Dakota sub-State areas. The following reviews the State economy by sector.

4.4.1 Agriculture

Real earnings fell from \$386 million in 1950 to \$137 million in 1959. In 1962, real earnings were \$365 million. In 1968, real earnings were \$367 million, but fell to \$320 million by 1970. In 1973, real earnings were at an all time high of \$875 million, but were only \$487 million in 1974.

For the period under review, agricultural employment decreased from 104,500 to 54,500, a decline of 48 percent or 2.7 percent per year. This compares with an annual rate of decline of 2.6 percent in the Region, and 3 percent in the nation. Agriculture accounted for 17.3 percent of total employment in South Dakota in 1974, down from 40.2 percent in 1950 and 31.7 percent in 1959. Agriculture's share of employment in the Region in 1974 was 12.8 percent, and nationally it was only 4.3 percent.

The total value of all crops harvested in South Dakota in 1973 was \$984 million (current dollars). Of this amount, \$305 million (31 percent) was from corn and \$227 million (23 percent) was from wheat (see Chapter IV). Agriculture's share of employment was 24.7 percent in the Northeast area, 18 percent in the Southeast, and 15.9 percent in the West.

Table D-25

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTHEAST SOUTH DAKOTA
1968, 1970 and 1972

	Agriculture Mining		Contract Construction		Manufacturing		Transport. Comm. & Utilities		Wholesale & Retail Trade		Finance Insurance & Real Estate		Services		Federal Gov't		State & Local Gov't		Total ²
Real Earnings (in millions of constant 1967 dollars)																			
1968	136.2	0.7	17.4		26.0		21.5		73.7		15.2		50.7		22.3		51.1		414.9
1970	124.7	0.7	17.7		28.6		22.9		76.0		15.9		53.7		23.1		58.7		422.1
1972	154.1	0.8	22.7		37.1		24.6		77.1		17.6		57.4		25.3		64.5		481.2
Sector as Percent of Total Earnings																			
1968	32.8	0.2	4.2		6.3		5.2		17.8		3.7		12.2		5.4		12.3		100.0
1970	29.5	0.2	4.2		6.8		5.4		18.0		3.8		12.7		5.5		13.9		100.0
1972	32.0	0.2	4.7		7.7		5.1		16.0		3.7		11.9		5.3		13.4		100.0
Sub-State Sector as Percent of State Sector																			
1968	37.1	4.8	27.8		24.4		28.0		29.9		28.5		28.6		18.7		32.1		30.0
1970	39.0	5.0	28.2		25.4		27.2		30.0		30.7		28.8		17.9		32.2		30.2
1972	35.1	5.5	28.5		28.4		25.3		29.6		31.4		28.1		16.7		32.1		29.4
Annual Growth Rate by Sector (in percent)																			
1968-1972	3.1	4.5	6.9		9.3		3.4		1.1		3.8		3.1		3.2		6.0		3.8

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-26

EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTHEAST SOUTH DAKOTA
1968, 1970 and 1972

	Agriculture		Mining	Contract Construction		Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade		Finance Insurance & Real Estate		Services	Federal Gov't	State & Local Gov't		Total
	Employment (in thousands)															
1968	24.2	0.3		3.0	5.2		3.8	18.0		2.5		13.4	2.8	14.7	87.9	
1970	23.7	0.3		3.1	5.5		4.0	18.6		2.9		13.9	2.7	15.7	90.4	
1972	22.7	0.3		3.4	7.0		3.8	18.3		3.1		14.8	2.6	15.8	91.8	
Sector as Percent of Total Employment																
1968	27.5	0.3		3.4	5.9		4.3	20.5		2.8		15.2	3.2	16.7	100.0	
1970	26.2	0.3		3.4	6.1		4.4	20.6		3.2		15.4	3.0	17.4	100.0	
1972	24.7	0.3		3.7	7.6		4.1	19.9		3.4		16.1	2.8	17.2	100.0	
Sub-State Sector as Percent of State Sector																
1968	40.3	9.4		30.6	26.3		29.7	31.3		28.4		30.6	17.5	34.3	32.0	
1970	55.5	9.7		31.9	27.5		29.4	31.1		31.9		30.3	16.5	34.4	32.0	
1972	40.2	9.7		30.6	31.0		27.3	30.7		33.3		29.7	15.2	34.1	31.7	
Annual Growth Rate by Sector (in percent)																
1968-1972	-1.6	0.0		3.2	7.7		0.0	0.4		5.5		2.5	-1.8	1.8	1.1	

¹ May not add to 100.0 due to rounding.

Source: See Table VIII-15.

Table D-27
REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTHEAST SOUTH DAKOTA
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)	Agriculture Mining		Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
1968	136.0	0.6	21.6	62.2	35.2	104.9	24.8	74.3	21.3	53.1	534.1
1970	109.3	0.6	20.8	66.4	39.7	109.0	23.4	79.0	23.9	61.0	533.2
1972	151.8	0.7	26.0	63.9	46.5	113.7	24.9	88.0	27.2	67.1	609.8
Sector as Percent of Total Earnings											
1968	25.5	0.1	4.0	11.7	6.6	19.6	4.6	13.9	4.0	9.9	100.0
1970	20.5	0.1	3.9	12.5	7.4	20.4	4.4	14.8	4.5	11.4	100.0
1972	24.9	0.1	4.3	10.5	7.6	18.4	4.1	14.4	4.4	11.0	100.0
Sub-State Sector as Percent of State Sector											
1968	37.1	4.6	34.4	58.5	45.8	42.5	46.4	42.0	17.9	33.4	38.6
1970	34.2	4.5	33.1	58.0	47.1	43.1	45.2	42.5	18.5	33.5	38.2
1972	34.6	4.5	32.7	48.9	47.9	43.7	44.4	43.0	18.0	33.4	37.3
Annual Growth Rate by Sector (in percent)											
1968-1972	2.8	0.8	4.8	0.7	7.2	2.0	0.1	4.3	6.3	6.0	3.4

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-28
EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTHEAST SOUTH DAKOTA
1968, 1970 and 1972

	Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total
<u>Employment (in thousands)</u>											
1968	20.7	0.1	3.1	10.7	5.6	23.6	4.0	17.8	2.6	14.0	102.2
1970	20.2	0.1	2.9	10.8	6.1	25.1	3.8	18.2	2.7	14.9	104.8
1972	19.4	0.2	3.5	10.5	6.4	25.3	3.8	20.6	2.7	15.1	107.5
<u>Sector as Percent of Total Employment</u>											
1968	20.2	0.1	3.0	10.5	5.5	23.1	3.9	17.4	2.5	13.7	100.0
1970	19.3	0.1	2.8	10.3	5.8	30.0	3.6	17.4	2.6	14.2	100.0
1972	18.0	0.2	3.2	9.8	5.9	23.5	3.5	19.2	2.5	14.0	100.0
<u>Sub-State Sector as Percent of State Sector</u>											
1968	34.4	3.1	31.6	54.0	43.8	41.1	45.4	40.7	16.2	32.7	37.2
1970	34.3	3.2	30.0	54.0	44.9	42.0	41.7	39.7	16.5	32.7	37.1
1972	34.4	6.5	31.5	46.5	46.0	42.4	40.9	41.3	15.8	32.6	37.1
<u>Annual Growth Rate by Sector (in percent)</u>											
1968-1972	-1.6	18.9	3.1	-0.5	3.4	1.8	-1.3	3.7	0.9	1.9	1.3

1 May not add to 100.0 due to rounding.

Source: See Table VIII-15.

Table D-29

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
WEST SOUTH DAKOTA
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)											
Agriculture	Mining	Contract Construction	Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²	
1968	94.8	12.9	23.7	18.1	20.2	67.9	13.4	75.4	54.9	433.4	
1970	85.8	12.5	24.4	17.6	21.7	67.8	12.5	82.2	62.4	440.3	
1972	133.2	13.4	30.9	29.7	26.0	69.2	13.5	98.6	69.4	543.0	
Sector as Percent of Total Earnings											
1968	21.9	3.0	5.5	4.2	4.7	15.7	3.1	21.0	17.4	100.0	
1970	19.5	2.9	5.5	4.0	4.9	15.4	2.8	19.5	18.7	100.0	
1972	24.5	2.5	5.7	5.5	4.8	12.7	2.5	24.5	18.2	100.0	
Sub-State Sector as Percent of State Sector											
1968	25.8	90.6	37.8	17.0	26.3	27.5	25.1	63.4	34.5	31.4	
1970	26.8	90.5	38.8	15.6	25.8	26.8	24.1	63.6	34.2	31.5	
1972	30.3	90.0	38.7	22.7	26.8	26.6	24.1	65.3	34.5	33.2	
Annual Growth Rate by Sector (in percent)											
1968-1972	8.9	1.0	6.8	13.1	6.5	0.5	0.3	6.9	6.0	5.8	

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-30
EMPLOYMENT BY
INDUSTRIAL SECTOR
WEST SOUTH DAKOTA
1968, 1970 and 1972

Employment (in thousands)	Contract			Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	State &	
	Agriculture	Mining	Construction						Federal Gov't	Local Gov't
1968	15.2	2.8	3.7	3.9	3.4	15.8	2.3	12.6	10.6	14.1
1970	15.0	2.7	3.7	3.7	3.5	16.1	2.4	13.8	11.0	15.0
1972	14.3	2.6	4.2	5.1	3.7	16.1	2.4	14.5	11.8	15.4
Sector as Percent of Total Employment										
1968	18.0	3.3	4.4	4.6	4.0	18.7	2.7	14.9	12.6	16.7
1970	17.3	3.1	4.3	4.2	4.0	18.5	2.8	15.9	12.7	17.3
1972	15.9	2.9	4.7	5.7	4.1	17.9	2.7	16.1	13.1	17.1
Sub-State Sector as Percent of State Sector										
1968	25.3	87.5	37.7	19.7	26.6	27.5	26.1	28.8	66.3	32.9
1970	25.5	87.1	38.1	18.5	25.7	26.9	26.4	30.1	67.1	32.9
1972	25.3	83.9	37.8	25.6	26.6	27.0	25.8	29.1	69.0	33.3
Annual Growth Rate by Sector (in percent)										
1968-1972	-1.5	-1.8	3.2	6.9	2.1	0.5	1.1	3.6	2.7	2.2
									1.6	

¹ May not add to 100.0 due to rounding.

Source: See table VIII-15.

4.4.2 Mining

During the 1950-1974 period, real earnings in mining increased from \$12.3 million in 1950 to a high of \$20.4 million in 1973 and 1974. Real earnings in 1974 accounted for only 1 percent of total earnings in South Dakota. Employment in mining has maintained a relatively constant level during much of the period, ranging from 3,100 to 3,500 employees. Mining's share of total employment in South Dakota was 1 percent in 1974.

The total value of mineral production in South Dakota in 1974 was \$118 million (current dollars). Of this amount, gold accounted for \$55 million (47 percent) with sand and gravel and stone accounting for 32 percent of the total (see Chapter IV).

In 1972, the West sub-State area accounted for about 84 percent of total mining employment in South Dakota. This is due primarily to mining activity in the Black Hills; for example, the Homestake Mine in Lead, South Dakota. In 1972, the mining sector accounted for 2.9 percent of total employment in the West area, only 0.2 percent in the Southeast area, and 0.3 percent in the Northeast.

4.4.3 Contract Construction

Real earnings in contract construction were at \$63 million in 1950 increasing to a high of \$118 million in 1962, falling back to \$63 million in 1968 and 1970 and then increasing to \$95 million in 1974. These fluctuations are similar to the other States.

During the period under review, employment in contract construction ranged from a low of 9,700 in 1970 to a high of 18,200 in 1962. Employment in contract construction in 1974 was 13,100, and accounted for 4.2 percent of total employment in the State of South Dakota. This is compared to contract construction's share of employment in the Region of 5.2 percent and in the nation of 4.9 percent.

4.4.4 Manufacturing

Real earnings in manufacturing increased from \$50 million in 1950 to \$142 million in 1974, an annual growth rate of 4.4 percent, compared to 4.3 percent in the Region and 3.6 percent in the nation.

Employment in manufacturing in South Dakota increased from 15,400 in 1950 to 25,900 in 1974, an annual growth of 2.2 percent. The Region's growth in manufacturing employment during this same period was 2.1 percent per year and 1.1 percent in the nation. The annual increase in employment in manufacturing in South Dakota for the 1970-1974 period was 6.7 percent, reflecting the substantial growth of this sector during recent years. However,

manufacturing's share of total employment in South Dakota increased from 5.9 percent in 1950 to 8.2 percent in 1974, which is significantly less than manufacturing's share in the Region of 10.3 percent and only one-third of manufacturing's share in the nation of 24.5 percent.

The distribution of manufacturing employment between the three sub-State areas in 1972 was as follows: Northeast, 31 percent; Southeast, 46.5 percent; and West, 25.6 percent. Roughly, 41 percent of total manufacturing earnings in South Dakota were generated by "food and kindred products" firms. The balance of manufacturing earnings were distributed across a wide variety of firms in "machinery manufacturing, transportation equipment manufacturing, and other manufacturers."

4.4.5 Transportation, Communications and Utilities (TCU)

Real earnings in TCU in South Dakota increased from \$53 million in 1950 to \$103 million in 1974, an annual rate of growth of 2.8 percent. This growth was above the Region's rate of 2.2 percent and slightly below the national rate of 3.3 percent. However, the annual growth rate in the 1970-1974 period was 5.1 percent, reflecting significant growth in recent years.

Employment in TCU was 14,100 in 1950, falling to 12,800 by 1968, but increasing to 15,500 in 1974. TCU's share of total employment in South Dakota in 1974 was 4.9 percent. This is below TCU's share of employment in both the Region (6.3 percent) and in the nation (5.7 percent). Transportation accounted for approximately 55 percent of total TCU earnings in 1972.

4.4.6 Wholesale and Retail Trade

Real earnings in trade increased from \$179 million in 1950 to \$291 million in 1974, or 2.1 percent per year. However, the growth during the 1950's was less than half the rate of growth since 1959. Employment in trade increased from 47,900 in 1950 to 67,200 in 1974, an annual increase of 1.4 percent.

Trade is the largest employing sector in South Dakota's economy, accounting for 21.5 percent of all employment in 1974. The larger share of employment over earnings reflects the relatively low wage level of this sector. The share ratios of the trade sector in South Dakota are essentially equivalent to trade's share ratios in the Region and slightly higher than trade's share ratios in the nation.

4.4.7 Finance, Insurance and Real Estate (FIRE)

Real earnings in FIRE increased from \$22 million in 1950 to \$61 million in 1974, or 4.3 percent per year. FIRE's share of total earnings increased from 2.3 percent in 1950 to 3.5 percent in 1974; and in 1974 was 85 percent of FIRE's share of earnings in the Region and 67 percent of FIRE's share in the nation. Employment in FIRE increased from 5,200 jobs in 1950 to 10,700

jobs in 1974, or 3.1 percent per year. FIRE's share of total employment in South Dakota in 1974 was 3.4 percent.

4.4.8 Services

Real earnings in services increased from \$76 million in 1950 to \$193 million in 1974, or 3.9 percent annually. This earnings growth rate in services is lower than that experienced by this sector in the Region (by 9 percent) and the nation (by 25 percent). Services' share of total earnings in South Dakota increased from 8 percent in 1950 to 11.2 percent in 1974 (in 1970 it was 13.3 percent).

Employment in services increased from 26,800 in 1950 to 54,600 in 1974, or 3 percent per year. Services employment accounted for 17.3 percent of total employment, which is similar to the proportion of employment provided by agriculture. Only the trade sector provided more employment than services in 1974.

Professional services accounted for 70 percent of total earnings in the services sector in 1972, with business services (i.e., lodging places, repair services, amusements and recreation services, personal services, and private household services) accounting for the balance.

4.4.9 Federal Government

Federal Government's share of real earnings was 8.5 percent in 1974, which is 13 percent greater than Federal Government's share of earnings in the Region and 31 percent more than Federal Government's share in the nation. Real earnings increased from \$55 million in 1950 to a high of \$151 million in 1972. In 1974, real earnings in this sector decreased to \$146 million. For the period under review, the annual rate of growth in real earnings for this sector was 4.1 percent.

Employment in the Federal Government sector increased from 9,600 in 1950 to 19,100 in 1974. Federal Government employment accounted for 6.1 percent of total employment in South Dakota in 1974. In 1974, Federal Government's share of employment in the Region was 5.6 percent and in the nation it was 3.3 percent.

In 1972, civilian government employment accounted for 61 percent of total earnings in the Federal Government sector, and military personnel accounted for the remainder. The West area in 1972 accounted for 69 percent of total Federal Government employment in South Dakota because of the sizable military installations near Rapid City.

Federal outlays in South Dakota in FY 1974 totaled \$888 million (current dollars). Of this amount, \$308 million (35 percent) were expended by HEW, \$124 million (14 percent) by Defense, and \$121 million (14 percent) by Agriculture (see Table VI-1).

4.4.10 State and Local Government

Real earnings in State and local government increased from \$59 million in 1950 to \$188 million in 1974, or 4.9 percent annually. This has been by far the fastest growing sector in South Dakota during the study period. However, this growth was still less than that in the Region (5.5 percent) and in the nation (6.8 percent); and the growth was very small between 1970 and 1974.

State and local government's share of total earnings in South Dakota increased from 6.2 percent in 1950 to 10.9 percent in 1974. The latter was similar to the State and local government's share in the Region of 11.0 percent, and the national share of 11.1 percent.

Employment in State and local government increased from 21,500 in 1950 to 51,100 in 1974, or 3.7 percent annually. During the period under review, the growth rate of earnings was significantly faster than that for employment (4.9 percent versus 3.7 percent). Consequently, average real earnings (1967 dollars) per employee increased from \$2,740 in 1950 to \$3,680 in 1974, or 1.2 percent per year.

Expenditures by State and local government in South Dakota totaled \$560 million (current dollars) in FY 1973. Of this amount, \$258 million (46 percent) went to education, and \$117 million (21 percent) went for highways (see Chapter VI).

4.5 Wyoming

Tables D-31 through D-36 present historical earnings and employment data for Wyoming sub-State areas. The following reviews the State economy by sector.

4.5.1 Agriculture

Real earnings in agriculture fell from \$113 million in 1950 to \$63 million in 1968, then increased to \$113 million in 1972 and \$121 million in 1973 before falling back to \$76 million in 1974.

For the period under review, agricultural employment in Wyoming decreased from 22,300 in 1950 to 13,600 in 1972. Employment increased after 1972 to a level of 15,200 in 1974. The annual rate of decline was 1.6 percent for the 1950-1974 period. This compares with an average annual rate of decline of 2.6 percent in the Region and 3 percent in the nation. Agriculture accounted for 8.4 percent of total employment in Wyoming in 1974, down from 20.1 percent in 1950 and 13.9 percent in 1959. Agriculture's share of employment in the Region in 1974 was 12.8 percent, and 4.3 percent nationally.

The total value of all crops harvested in Wyoming in 1973 was \$160 million (current dollars). Of this amount, \$84 million (53 percent) was hay, and \$24 million (15 percent) was wheat (see Chapter IV).

Table D-31

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
EAST WYOMING
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)	Contract			Transport.		Finance		Federal		State &	
	Agriculture	Mining	Construction	Manufacturing	Utilities	Wholesale & Retail Trade	Insurance & Real Estate	Services	Gov't	Local Gov't	Total ²
1968	39.7	66.2	46.2	38.5	62.2	87.6	23.1	65.3	63.4	83.1	575.4
1970	62.0	71.6	52.5	43.7	68.3	95.1	23.5	76.6	67.1	90.0	650.5
1972	71.0	71.3	57.9	47.3	76.3	100.5	25.8	76.5	78.0	105.0	709.6
Sector as Percent of Total Earnings											
1968	6.9	11.5	8.0	6.7	70.8	15.2	4.0	11.3	11.0	14.4	100.0
1970	9.5	11.0	8.1	6.7	10.5	14.6	3.6	11.8	10.3	13.8	100.0
1972	10.0	10.0	8.2	6.7	10.7	14.2	3.6	10.8	11.0	14.8	100.0
Sub-State Sector as Percent of State Sector											
1968	62.6	72.7	72.0	74.0	75.6	76.3	84.4	71.2	84.1	76.3	74.6
1970	58.1	72.2	73.9	74.8	76.1	76.5	83.3	72.0	84.8	76.3	73.8
1972	62.8	68.1	63.4	74.3	75.8	76.4	82.1	71.7	85.2	76.1	73.0
Annual Growth Rate by Sector (in percent)											
1968-1972	15.7	1.8	5.8	5.3	5.2	3.5	2.7	4.0	5.3	6.0	5.4

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-32

EMPLOYMENT BY
INDUSTRIAL SECTOR
EAST WYOMING
1968, 1970 and 1972

Employment (in thousands)	Contract			Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total
	Agriculture	Mining	Construction								
1968	9.5	9.0	5.7	5.6	8.9	19.7	•	16.6	8.3	18.2	104.7
1970	9.2	9.8	5.9	6.1	9.3	20.9		17.4	8.1	18.5	108.7
1972	9.0	9.5	6.6	6.6	9.1	22.3		18.4	8.5	19.8	113.4
Sector as Percent of Total Employment											
1968	9.1	8.6	5.4	5.4	8.5	18.8		15.8	7.9	17.4	100.0
1970	8.5	9.0	5.4	5.6	8.6	19.2		16.0	7.5	17.0	100.0
1972	7.9	8.4	5.8	5.8	8.0	19.7		16.2	7.5	17.5	100.0
Sub-State Sector as Percent of State Sector											
1968	66.4	72.0	69.5	70.9	75.4	74.6		71.5	84.7	75.8	73.7
1970	65.7	72.6	71.9	70.9	75.0	75.2		71.9	84.4	75.2	73.8
1972	66.2	68.8	61.7	71.7	74.6	74.3		71.0	85.8	75.0	72.7
Annual Growth Rate by Sector (in percent)											
1968-1972	-1.3	1.4	3.7	4.2	0.6	3.1	3.0	2.6	0.6	2.1	2.0

¹ May not add to 100.0 due to rounding.

Source: See Table VIII-18.

Table D-33

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
NORTHWEST WYOMING
1968, 1970 and 1972

Real Earnings (in millions of constant 1967 dollars)	Contract			Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ²
	Agriculture	Mining	Construction								
1968	13.5	10.3	8.2	10.8	7.1	15.1	2.4	18.9	7.6	13.6	107.6
1970	24.1	9.4	7.8	11.3	7.4	16.0	2.7	21.5	7.6	14.8	122.5
1972	24.0	9.8	10.2	12.5	8.6	17.0	3.6	21.2	8.7	17.6	133.1
Sector as Percent of Total Earnings											
1968	12.6	9.6	7.6	10.0	6.6	14.0	2.3	17.6	7.1	12.6	100.0
1970	19.6	7.7	6.4	9.2	6.0	13.1	2.2	17.5	6.2	12.1	100.0
1972	18.0	7.4	7.7	9.4	6.4	12.2	2.7	15.9	6.5	13.2	100.0
Sub-State Sector as Percent of State Sector											
1968	21.4	11.4	12.8	20.7	8.6	13.1	8.9	20.6	10.1	12.5	14.0
1970	22.6	9.5	11.0	19.3	8.2	12.9	9.5	20.2	9.6	12.5	13.9
1972	21.2	9.4	11.2	19.6	10.2	12.9	11.4	19.8	9.5	12.8	13.7
Annual Growth Rate by Sector (in percent)											
1968-1972	15.3	-1.3	5.6	3.7	4.9	3.0	10.1	2.8	3.2	6.7	5.4

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-34
EMPLOYMENT BY
INDUSTRIAL SECTOR
NORTHWEST WYOMING
1968, 1970 and 1972

Employment (in thousands)	Contract			Manufacturing	Transport. Comm. & Utilities	Wholesale & Retail Trade	Finance Insurance & Real Estate	Services	Federal Gov't	State & Local Gov't	Total ¹
	Agriculture	Mining	Construction								
1968	2.9	1.5	1.2	1.7	1.1	3.8	0.4	4.4	1.0	3.0	21.0
1970	2.9	1.4	1.0	1.8	1.1	3.9	0.5	4.5	1.0	3.2	21.3
1972	2.8	1.5	1.5	1.9	1.2	4.2	0.5	4.9	1.0	3.4	22.9
Sector as Percent of Total Employment											
1968	13.8	7.1	5.7	8.1	5.2	18.1	1.9	21.0	4.8	14.3	100.0
1970	13.6	6.6	4.7	8.5	5.2	18.3	2.4	21.1	4.7	15.0	100.0
1972	12.2	6.5	6.6	8.3	5.2	18.3	2.2	21.4	4.4	14.9	100.0
Sub-State Sector as Percent of State Sector											
1968	20.3	12.0	14.6	21.5	9.3	14.4	10.2	19.0	10.2	12.5	14.8
1970	20.7	10.4	12.2	20.9	8.9	14.0	11.6	18.6	10.4	13.0	14.5
1972	20.6	10.9	14.0	20.6	9.8	14.0	11.4	18.9	10.1	12.9	14.7
Annual Growth Rate by Sector (in percent)											
1968-1972	-0.9	0.0	5.7	2.8	2.2	2.5	5.7	2.7	0.0	3.2	2.2

¹ May not add to 100.0 due to rounding.

Source: See Table VIII-18.

Table D-35

REAL EARNINGS¹
BY INDUSTRIAL SECTOR
SOUTHWEST WYOMING
1968, 1970 and 1972

Real Earnings in millions of constant 1967 dollars)	Agriculture			Contract		Manufacturing		Transport. Comm. & Utilities		Wholesale & Retail Trade		Finance Insurance & Real Estate		Services		Federal Gov't		State & Local Gov't		Total ²
	Ag.	Ag.	Ag.	Construction	Construction	Manufacturing	Manufacturing	Utilities	Utilities	Wholesale & Retail Trade	Wholesale & Retail Trade	Finance Insurance & Real Estate	Finance Insurance & Real Estate	Services	Services	Federal Gov't	Federal Gov't	State & Local Gov't	State & Local Gov't	
1968	10.1	44.5	9.8	2.7	13.0	12.1	1.8	13.0	12.1	7.5	4.3	12.2	12.2	89.1						
1970	20.5	18.2	10.7	3.4	14.1	13.2	2.0	14.1	13.2	8.4	4.4	13.2	13.2	106.2						
1972	18.1	23.5	23.2	3.9	15.8	14.1	2.0	15.8	14.1	9.0	4.9	15.3	15.3	129.9						
Sector as Percent of Total Earnings																				
1968	11.5	16.4	11.1	3.1	14.8	13.8	2.1	14.8	13.8	8.5	4.9	13.9	13.9	100.0						
1970	19.0	16.8	9.9	3.2	13.0	12.2	1.9	13.0	12.2	7.7	4.1	12.2	12.2	100.0						
1972	13.9	18.1	17.8	3.0	12.2	10.8	1.6	12.2	10.8	7.0	3.7	11.8	11.8	100.0						
Sub-State Sector as Percent of State Sector																				
1968	16.0	15.9	15.2	5.3	15.8	10.6	6.7	15.8	10.6	8.1	5.7	11.2	11.2	11.4						
1970	19.3	18.3	15.1	5.8	15.7	10.6	7.2	15.7	10.6	7.8	5.6	11.1	11.1	12.3						
1972	16.0	22.5	25.4	6.1	15.7	10.7	6.5	15.7	10.7	8.5	5.3	11.1	11.1	13.4						
Annual Growth Rate by Sector (in percent)																				
1968-1972	15.5	13.0	24.2	9.1	5.0	3.8	2.4	5.0	3.8	5.0	2.9	5.8	5.8	10.2						

¹ Defined as wages and salaries, plus other labor and proprietors income, deflated by the U.S. personal consumption price deflator, 1967=100.0.

² May not add to 100.0 due to rounding.

Source: See Table VIII-1.

Table D-36
EMPLOYMENT BY
INDUSTRIAL SECTOR
SOUTHWEST WYOMING
1968, 1970 and 1972

<u>Employment (in thousands)</u>		<u>Contract Construction</u>		<u>Manufacturing</u>	<u>Transport. Comm. & Utilities</u>	<u>Wholesale & Retail Trade</u>	<u>Finance Insurance & Real Estate</u>	<u>Services</u>	<u>Federal Gov't</u>	<u>State & Local Gov't</u>	<u>Total</u>
<u>Agriculture</u>	<u>Mining</u>										
<u>Sector as Percent of Total Employment</u>											
1968	1.9	2.0	1.3	0.6	1.8	2.9	0.3	2.2	0.5	2.8	16.3
1970	1.9	2.3	1.3	0.7	2.0	3.0	0.3	2.3	0.5	2.9	17.2
1972	1.8	2.8	2.6	0.7	1.9	3.5	0.3	2.6	0.4	3.1	19.7
<u>Sub-State Sector as Percent of State Sector</u>											
1968	11.6	12.3	8.0	3.7	11.0	17.8	1.8	13.5	3.1	17.2	100.0
1970	11.0	13.4	7.6	4.1	11.6	17.4	1.7	13.4	2.9	16.9	100.0
1972	9.1	14.2	13.2	3.6	9.6	17.8	1.5	13.2	2.0	15.7	100.0
<u>Annual Growth Rate by Sector (in percent)</u>											
1968-1972	-1.3	8.8	18.9	3.9	1.4	4.8	0.0	4.3	-5.4	2.6	4.9

¹ May not add to 100.0 due to rounding.

Source: See Table VIII-18.

Agriculture's share of employment in the East area in 1972 was 7.9 percent, compared with 12.2 percent in the Northwest, and 9.1 percent in the Southwest.

4.5.2 Mining

During the 1950-1974 period, real earnings in mining increased from \$49 million to \$147 million, or 4.6 percent annually. Real earnings in 1974 in mining accounted for 13.6 percent of total earnings in Wyoming. This is over 5 times mining's share of earnings in the Region and over 12 times mining's share of earnings in the nation.

Employment in mining in Wyoming increased from 9,300 in 1950 to 18,100 in 1974, or 2.8 percent annually. This compares with an annual rate of growth of only 1.1 percent for the Region and an annual rate of decline of 1.2 percent for the nation as a whole. In 1974, mining's share of total employment in Wyoming was 10 percent, compared to only 1.9 percent in the Region and 0.8 percent in the nation. These statistics indicate the greater importance of the mining sector in Wyoming as compared to this sector in both the Region and the nation.

The total value of mineral production in Wyoming in 1974 was \$1.6 billion (current dollars), (see Chapter IV). Of this amount, \$983 million (63 percent) was crude petroleum production. The value of coal production in 1974 was \$113 million, 7 percent of the total value of all mineral production. However, the value of coal production increased from \$27 million in 1971 to \$113 million in 1974, or 4 times during the four-year period. However, much of this growth resulted from price increases since coal output increased from 8 million short tons in 1971 to 18.9 million short tons in 1974, and increase of 2.3 times. In 1972, the East sub-State area accounted for 68.8 percent of total mining employment in Wyoming; the West area accounted for 20.3 percent; and the Northwest area accounted for only 10.9 percent. In terms of mining's share of employment by sub-State area, mining accounted for 14.2 percent of total employment in 1972 in the Southwest, 8.4 percent of total employment in the East, and 6.5 percent in the West. These share ratios of mining employment are compared to 10 percent for the State as a whole, 1.7 percent in the Region and 10.8 percent in the nation.

The mining sector is a basic sector in Wyoming's economy in the sense that it brings money into the State, and it drives other industrial sectors. At the same time, the level of mining activity in the State is largely determined by economic forces external to Wyoming and to the Region. Thus, the national demand for petroleum and coal are largely responsible for the changes in mining output in Wyoming, particularly the large increases in coal production during recent years.

4.5.3 Contract Construction

Real earnings in contract construction as in the other States are cyclical, having increased from \$45 million in 1950 to \$151 million in 1974, or 5.2 percent annually. However, the growth over this period was not constant. For example, in 1959 real earnings were at \$74 million, but fell to \$64 million in 1968, then increased to \$151 million in 1974. Contract construction's share of total earnings in Wyoming has ranged from 8.1 percent to 14.1 percent during the study period. The latter, is about double contract construction's share of earnings in the nation and in the Region.

Contract construction employment has ranged from a low of 8,200 to a high of 18,000 during the period under review. Contract construction's share of total employment in Wyoming has ranged from a low of 5.6 percent in 1970 to a high of 9.9 percent in 1974. The latter again being about double contract construction's share of employment in the Region and in the nation. In 1973, the Southwest sub-State area had a significantly larger than proportionate share of contract construction employment due to coal-fired generating plant construction in that area.

4.5.4 Manufacturing

Real earnings in manufacturing increased from \$34 million in 1950 to \$67 million in 1974, or 2.8 percent annually. This compares with an annual growth of 4.3 percent in the Region and 3.6 percent in the nation. Real earnings in manufacturing in 1973 were \$68 million, \$1 million higher than in 1974. The decline in earnings from 1973 to 1974 reflects inflation and a general softening in the national demand for manufactured products.

Employment in manufacturing in Wyoming increased from 6,700 in 1950 to 9,400 in 1959, followed by a modest decline during the 1960's, but increasing to 9,500 by 1974. The annual rate of growth during the 1960's was only 0.3 percent, but from 1970-1974 it was 4.2 percent. The increase for the twenty-four year period under review was 2.9 percent per year. This compares to 2.1 percent for the Region and 1.1 percent for the nation. Manufacturing's share of total employment in Wyoming was 6 percent in 1950, 6.7 percent in 1959, but only 5.2 percent by 1974. The latter is roughly one-half of manufacturing's share of employment in the Region (10.3 percent) and one-fifth of manufacturing's share of employment in the nation (24.5 percent).

Manufacturing accounted for 5.8 percent of total employment in the East, 8.3 percent in the Northwest, and only 3.6 percent in the Southwest in 1972. Roughly, 42 percent of total manufacturing earnings in Wyoming in 1972 were generated by "petroleum refining and related products" firms. Lumber and furniture manufacturers accounted for 14 percent of total earnings. Manufacturing firms in "food and kindred products" accounted for 13 percent.

From the 1975 State directory of manufacturing firms with 100 or more persons, the largest firms were Alpine Designs (down filled clothing products) in Cheyenne, AMOCO Oil (petroleum refining) in Casper, Husky Oil (petroleum refining) in Cheyenne and Cody, PASO (petroleum refinery) in Sinclair, and TEXACO (petroleum refining) in Casper.

4.5.5 Transportation, Communications and Utilities (TCU)

Real earnings in TCU increased from \$73 million in 1950 to \$111 million in 1974, or 1.8 percent annually. This growth rate is below the Region's rate of 2.2 percent and the national rate of 3.3 percent. However, the annual increase in Wyoming from 1970 through 1974 was 5.5 percent, which largely reflects the operation of new coal-fired electric generating plants. Transportation accounted for 64 percent of total TCU earnings in 1972.

Employment in TCU declined from 14,300 in 1950 to a low of 11,800 in 1968, but subsequently increased to 13,800 in 1974. TCU's share of total employment in Wyoming has declined from 12.9 percent in 1950 to 7.6 percent in 1974. However, TCU's share of 1974 employment in Wyoming is still higher than the Region's share (6.3 percent) or the nation's share (5.7 percent)

4.5.6 Wholesale and Retail Trade

Real earnings in trade increased from \$100 million in 1950 to \$151 million in 1974, or 1.7 percent per year. However, the annual growth rate during the 1970-1974 period was at 4.9 percent. Employment in trade increased from 18,900 in 1950 to 35,500 in 1974, or 2.7 percent annually. Consequently, average real earnings (1967 dollars) per employee in trade decreased from \$5,290 in 1950 to \$4,250 in 1974. It is surprising that real earnings in the trade sector have not shown substantial growth over the 1950-1974 period. However, given 1) the substantial out-migration experienced by many areas in Wyoming during much of this period, and 2) probably the large proportion of part-time jobs in the trade sector and jobs used to supplement family income, it is reasonable to conclude that there has been a "surplus" supply of labor for this sector in many areas. This would tend to bid down the average wage level in this sector.

Trade is the largest employing sector in Wyoming's economy, accounting for 19.6 percent of total employment in 1974. The larger share of employment over earnings reflects the relatively low wage levels in this sector. The share ratios of the trade sector in Wyoming are slightly less than trade's share ratios in both the Region and in the nation.

4.5.7 Finance, Insurance and Real Estate (FIRE)

Real earnings in FIRE increased from \$14 million in 1950 to \$32 million in 1974, or 3.3 percent per year. FIRE's share of total earnings increased from 2.6 percent in 1950 to 3.6 percent in 1968. FIRE's share of total earnings in Wyoming in 1974 (2.9 percent) is 29 percent below FIRE's share

in the Region and 44 percent below FIRE's share in the nation. Employment in FIRE increased from 2,400 in 1950 to 4,900 in 1974, or 3 percent per year. FIRE's share of employment increased from 2.2 percent in 1950 to a high of 2.9 percent in 1970, then fell back to 2.7 percent in 1974.

4.5.8 Services

Real earnings in services increased from \$41 million in 1950 to \$115 million in 1974, or 4.4 percent per year. This growth rate is approximately the same as for the services sector in the Region, and is 15 percent below the nation rate. Service's share of total earnings of Wyoming increased from 7.4 percent to 10.7 percent during the study period (in 1970 it was 12.1 percent).

Employment in services increased steadily during this period from 9,300 in 1950 to 28,400 in 1974, or 4.8 percent per year. In terms of employment, this is by far the fastest growing sector in Wyoming during this period. In 1974, services accounted for 15.7 percent of total employment and was second only to trade as the sector providing the most employment.

Professional services accounted for 54 percent of total earnings in the services sector in 1972, while business services (i.e., lodging places, repair services, amusements and recreation services, personal services, and private household services) accounted for the balance.

4.5.9 Federal Government

Real earnings in the Federal Government sector increased from \$60 million in 1950 to a high of \$95 million in 1973, but then fell to \$91 million in 1974. Federal Government's share of total earnings during the period under review ranged from a high of 10.7 percent in 1950 to a low of 6.7 percent in 1959. Federal Government's share of total earnings in 1974 was 8.4 percent as compared to 7.5 percent in the Region and 6.5 percent in the nation.

Employment was 8,800 in 1950, but then fell to 6,900 in 1959, then increased to 10,800 in 1974. Federal Government's share of total employment ranged from a high of 7.9 percent in 1950 to a low of 5.6 percent in 1959. Federal Government's share of total employment in Wyoming was 6 percent in 1974 as compared to 5.6 percent in the Region and 3.3 in the nation.

In 1972, civilian government employment accounted for 84 percent of total earnings in the Federal Government sector, while military personnel accounted for only 16 percent. This reflects the absence of major military installations in Wyoming.

Federal outlays for Wyoming in FY 1974 totaled \$492 million (current dollars). Of this amount, \$125 million (25 percent) was expended by HEW, \$109 million (22 percent) by Defense, and only \$29 million (6 percent) by Agriculture (see Chapter VI, Table VI-1).

4.5.10 State and Local Government

Real earnings in State and local government increased from \$31 million in 1950 to \$137 million in 1974, or 6.4 percent per year. The growth rate of earnings in this sector is by far the highest of any sector in Wyoming during the study period. Furthermore, the rate of growth is fairly evenly distributed between the 1950's, 1960's and early 1970's. During the 1950-1974 period, the growth in real earnings in State and local governments in the Region was 5.5 percent, but was 6.8 percent in the nation.

State and local government's share of total earnings in Wyoming has ranged from a high of 14.2 percent in 1972 to a low of 5.5 percent in 1950. In 1974, State and local government's share of real earnings was 12.7 percent which was higher than State and local government's share in the Region (11.0 percent) or nation (11.1 percent).

Employment in State and local government increased from 9,700 in 1950 to 27,000 in 1974, or 4.4 percent annually. State and local government's share of employment in Wyoming generally increased during the study period. from 8.7 percent in 1950 to 14.9 percent in 1974. The distribution of earnings and employment between the three sub-State areas generally follows the distribution of total earnings and employment between these areas.

Expenditures by State and local governments in Wyoming totaled \$383 million (current dollars) in FY 1973. Of this amount, \$177 million (46 percent) went to education, and \$76 million (20 percent) went for highways (see Chapter VI).

APPENDIX E

SURVEY OF MAJOR EMPLOYERS

AND PUBLIC OFFICIALS

1.0 Summary

Two mail survey questionnaires were developed in order to sample opinion from 1) major employers operating in the Old West Region, and 2) State public officials in the Region. The survey dealt, in general, with issues surrounding economic growth in the Region. The questionnaire to employers concentrated on factors affecting the firm's location, financing and employment profiles, and perceptions of potentials and problems affecting future growth. The questionnaire to public officials was oriented toward opinion of the desirability of various types of growth, and the identification of potential incentives or bottlenecks to development in the various States.

2.0 Survey of Employers

A questionnaire survey of major employers operating in the Old West Region was developed in order to obtain a better understanding of the private sector's economic and employment profile and of specific areas of potential or constraint facing employers in the Region. A total of 756 questionnaires were mailed to employers using a list developed from information supplied by the Departments of Employment Security of the various States. Recipients were selected using the criterion of having greater than 100 employees. A sample of the questionnaire used is presented in Exhibit E-1. The response rate to the employers questionnaire ranged from 29 percent to 39 percent among the various States. Table E-1 summarizes questionnaire response data.

Major employers in the Region responding to the survey generally show a pattern of having been located there for a considerable period of time. Table E-2 summarizes information on the length of time respondents had operated in the Region. Mining, finance and insurance, and construction firms had nearly all operated in the Region for 20 years or more. Only in the manufacturing sector had significant numbers of major firms begun to operate in the Region in the past five or ten years. Table E-2 also shows the percentage of respondents who stated the firm's headquarters were located in the Region. This percentage ranged from 47 percent to 75 percent among the various States. Forty-eight and 56 percent of the firms in the manufacturing and mining industries, respectively, had the firm's headquarters located in the Region, whereas finance and insurance, and construction firms tended to have headquarters in the Region more often with 73 percent and 83 percent, respectively.

Table E-3 presents the particular economic sectors in which the questionnaire respondents operated. Manufacturing was the dominant sector being indicated by 59 percent of the respondents. Only two percent of the respondents indicated their area of economic activity as agriculture. While the region has much economic activity in agriculture, few individual firms in this field employ more than 100 employees. Table E-4 shows

Exhibit E-1

OLD WEST REGION
(Montana, Nebraska, North Dakota, South Dakota, Wyoming)

SURVEY OF EMPLOYERS QUESTIONNAIRE

1. Background

- a) Approximately how long has your firm been operating at this location as a supplier and/or producer of the general line of products and/or services which you now provide?

less than five years ☐

five to 10 years ☐

10 to 20 years ☐

over 20 years ☐

- b) Please indicate the general category which best describes business activity in which your firm is currently engaged.

agriculture (food production) ☐

mining ☐

forestry products ☐

manufacturing

food and kindred products (processing) ☐

tobacco manufactures ☐

textile mill products ☐

apparel and other-fabric products ☐

lumber and wood products ☐

furniture and fixtures ☐

paper and allied products ☐

printing, publishing, and allied products ☐

chemical and allied products ☐

petroleum refining and related industries ☐

Exhibit E-1 (cont'd)

rubber and miscellaneous plastics products	<input type="checkbox"/>
leather and leather products	<input type="checkbox"/>
stone, clay, glass, and concrete products	<input type="checkbox"/>
primary metal industries	<input type="checkbox"/>
fabricated metal products	<input type="checkbox"/>
machinery, except electrical	<input type="checkbox"/>
electrical and electronic machinery, equipment, and supplies	<input type="checkbox"/>
transportation equipment	<input type="checkbox"/>
measuring devices and special instruments	<input type="checkbox"/>
other manufacturing	<input type="checkbox"/>
finance and/or insurance	<input type="checkbox"/>
wholesale and/or distribution	<input type="checkbox"/>
retail trade	<input type="checkbox"/>
transportation	<input type="checkbox"/>
utility	<input type="checkbox"/>
construction	<input type="checkbox"/>
services	
hotel and lodging	<input type="checkbox"/>
business services	<input type="checkbox"/>
research & development	<input type="checkbox"/>
automobile repair & services	<input type="checkbox"/>
amusement	<input type="checkbox"/>
medical, educational services and nonprofit organizations	<input type="checkbox"/>

other (please specify) _____

- c) Please indicate the importance of the following reasons for the location of your firm's facilities at its current site(s) within the five state (Montana, Nebraska, North Dakota, South Dakota, and Wyoming) region:

	<u>Very</u> <u>Impor-</u> <u>tant</u>	<u>Somewhat</u> <u>Impor-</u> <u>tant</u>	<u>Little</u> <u>Impor-</u> <u>tance</u>	<u>No</u> <u>Impor-</u> <u>tance</u>
size of labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
quality of labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
favorable wage rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
proximity to markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
proximity to raw materials/ suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
favorable transportation rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
state and local taxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

others (please specify) _____

Exhibit E-1 (cont'd)

- d) To which key states (or foreign nations) does your firm transfer or sell its products and/or services for consumption, processing, or resale? (please list)

1. _____
2. _____
3. _____
4. _____
5. _____

- e) From which key states (or foreign nations) does your firm purchase products and/or services for processing and/or distribution? (please list)

1. _____
2. _____
3. _____
4. _____
5. _____

- f) Is your firm's headquarters located within the five state (Montana, Nebraska, North Dakota, South Dakota, and Wyoming) region?

Yes ☐

No ☐

- g) Approximately what total percentage growth in gross sales has your firm experienced over the past 5 years)

not applicable ☐ (not operating 5 years ago)

decline ☐

no growth. ☐

0 - 9. ☐

10-24. ☐

25-50. ☐

over 50. ☐

- h) Approximately what total percentage growth do you anticipate for your firm over the next 5 years?

decline ☐

no growth ☐

0 - 9% ☐

10-24% ☐

25-50% ☐

over 50% ☐

- i) Do you anticipate over the next 5 years that your operations will:

become more capital intensive, ☐

become more labor intensive, or ☐

remain about the same ☐

2. Investment

- a) Approximately how much has your firm's investment in land (or leases) increased during the past 5 years?

New \$ _____

Replacement \$ _____

- b) Approximately how much has your firm's investment in plant and equipment increased during the past 5 years?

New \$ _____

Replacement \$ _____

- c) Approximately how much do you anticipate that your firm's investment in land (or leases) will increase during the next 5 years?

New \$ _____

Replacement \$ _____

- d) Approximately how much do you anticipate that your firm's investment in plant and equipment will increase during the next 5 years?

New \$ _____

Replacement \$ _____

3. Employment

- a) Approximately how many employees do you currently have?

- b) Approximately what is your payroll at present?

- c) During the past 5 years, has your employment increased [], or decreased []? Approximately what total percentage change in employment has occurred over the past 5 years?

- d) Has the employment trend been steady or has there been a significant change in the trend?

- e) If there has been a significant change in employment trend, to what do you attribute it? _____

- f) For the next 5 year period, do you anticipate an increase [] or decrease [] in your firm's employment? Approximately what total percentage change in employment do you anticipate for the next 5 years?

- g) If you anticipate a significant change in employment for the next 5 years, to what do you attribute it? _____

- h) What is an approximate distribution of your current employees by job class/skill levels?

laborers	_____	%
semi-skilled	_____	%
skilled	_____	%
professional/management	_____	%
TOTAL		100%

- i) Do you anticipate that these relative numbers will change over the next 5 years?

Yes ☐

No ☐

- j) If so, what changes do you expect? _____

- k) What are your major employment problems?

	<u>Very Important</u>	<u>Somewhat Important</u>	<u>Little Importance</u>
size of local labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wage rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
education of workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
skill of workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (please specify) _____			

Please elaborate on the above problems _____

4. Sources of Capital

- a) How does your firm normally finance new or replacement plant and equipment?

	<u>Very Important</u>	<u>Somewhat Important</u>	<u>Little Importance</u>
parent corporation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lease arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
retained earnings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
equity capital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bank borrowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other financial institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other sources _____			

- b) Do you normally utilize local (within your state) sources for obtaining capital to meet your requirements?

Yes ☐

No ☐

- c) If you do not utilize local sources for financing, what is the problem with these sources? _____

- d) What other problems or constraints do you have in obtaining the required capital? _____

Exhibit E-1 (cont'd)

- h) What is an approximate distribution of your current employees by job class/skill levels?

laborers	_____	%
semi-skilled	_____	%
skilled	_____	%
professional/management	_____	%
TOTAL		100%

- i) Do you anticipate that these relative numbers will change over the next 5 years?

Yes ☐

No ☐

- j) If so, what changes do you expect? _____

- k) What are your major employment problems?

	<u>Very</u> <u>Important</u>	<u>Somewhat</u> <u>Important</u>	<u>Little</u> <u>Importance</u>
size of local labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
wage rates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
education of workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
skill of workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (please specify) _____			

Please elaborate on the above problems _____

4. Sources of Capital

- a) How does your firm normally finance new or replacement plant and equipment?

	<u>Very Important</u>	<u>Somewhat Important</u>	<u>Little Importance</u>
parent corporation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lease arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
retained earnings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
equity capital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bank borrowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other financial institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other sources _____			

- b) Do you normally utilize local (within your state) sources for obtaining capital to meet your requirements?

Yes ☐

No ☐

- c) If you do not utilize local sources for financing, what is the problem with these sources? _____

- d) What other problems or constraints do you have in obtaining the required capital? _____

Exhibit E-1 (cont'd)

5. Potentials, Problems, and Infrastructure

- a) What problems or bottlenecks do you see in the five state (Montana, Nebraska, North Dakota, South Dakota, and Wyoming) region which are constraining, or could constrain, your business growth?

	<u>Very Import- tant</u>	<u>Somewhat Import- tant</u>	<u>Little Import- tance</u>	<u>No Import- tance</u>
market growth/ demand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
financing of plant & equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
labor force size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
attitude and aptitude of labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
state and local taxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
environmental laws and restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
licensing procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public attitude regarding growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
land ownership (e.g., federal and state land)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of construction contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of equipment from suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of raw materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public investments (schools, water, sewer, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<u>Very Import- tant</u>	<u>Somewhat Import- tant</u>	<u>Little Import- tance</u>	<u>No Import- tance</u>
availability of other public services (police, fire, sanitation, etc.)	[]	[]	[]	[]
availability of utilities	[]	[]	[]	[]
vocational training programs	[]	[]	[]	[]
other educational activities	[]	[]	[]	[]
availability of water	[]	[]	[]	[]
availability of buildings and/or plant sites	[]	[]	[]	[]

Please elaborate _____

- b) What potentials do you see in the five state
(Montana, Nebraska, North Dakota, South Dakota, and
Wyoming) region which would benefit your future business
growth? Which of the following factors are most likely
to exert a positive influence on your firm's growth the
next 5 years?

	<u>Very Import- tant</u>	<u>Somewhat Import- tant</u>	<u>Little Import- tance</u>	<u>No Import- tance</u>
market growth/ demand	[]	[]	[]	[]
financing of plant & equipment	[]	[]	[]	[]
labor force size	[]	[]	[]	[]
attitude and aptitude of labor force	[]	[]	[]	[]

Exhibit E-1 (cont'd)

	<u>Very Import- tant</u>	<u>Somewhat Import- tant</u>	<u>Little Import- tance</u>	<u>No Import- tance</u>
state and local taxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
environmental laws and restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
licensing procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public attitude regarding growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
land ownership (e.g., federal and state land)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of construction contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of equipment from suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of raw materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public investments (schools, water, sewer, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of other public services (police, fire, sanitation, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Exhibit E-1 (cont'd)

	<u>Very Import- tant</u>	<u>Somewhat Import- tant</u>	<u>Little Import- tance</u>	<u>No Import- tance</u>
availability of utilities	[]	[]	[]	[]
vocational training programs	[]	[]	[]	[]
other educational activities	[]	[]	[]	[]
availability of water	[]	[]	[]	[]
availability of buildings and/or plant sites	[]	[]	[]	[]

Please elaborate _____

c) How do the potentials identified by you affect your future investment decisions? _____

d) From your point of view, is there sufficient cooperation among the local, state, and federal governments and the business community? _____

- e) If you feel that problems exist, could you elaborate on these problems and provide recommendations on how you feel they should be dealt with? _____

- f) Please provide any additional comments on the economy, attitude, life, or the institutions in the five state (Montana, Nebraska, North Dakota, South Dakota, and Wyoming) region.

Thank you very much for your cooperation in completing this questionnaire. To assist with our analysis of the potentials and problems of the five state region, it would be helpful if we could determine your name and location. However, we also understand that you may wish to remain completely anonymous. Centaur Management Consultants, Inc. assures you that should you choose to identify your firm's name and location, there will be no disclosure of specific responses. All information received will be aggregated to assure confidentiality of individual responses.

Firm Name _____

City _____

As a minimum, could you indicate the state in which your plant or facility is located:

Montana	<input type="checkbox"/>
Nebraska	<input type="checkbox"/>
North Dakota	<input type="checkbox"/>
South Dakota	<input type="checkbox"/>
Wyoming	<input type="checkbox"/>

I do not wish to disclose my firm's name or address ☐

Table E-1
 RESPONSES TO
 SURVEY OF EMPLOYERS QUESTIONNAIRE
 OLD WEST REGION
 1975

	<u>Region</u>	<u>Montana</u>	<u>Nebraska</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Wyoming</u>	<u>Multi-State</u>
Number of Questionnaires							
Mailed	756	93	285	92	111	123	52
Received	255	36	91	36	41	36	15
Percent Responses	33.7	38.7	31.9	39.1	36.9	29.3	28.8

Table E-2

LENGTH OF TIME OPERATING IN REGION
AND
HEADQUARTERS LOCATION
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

By Area	Length of Time Operating in Region				Firms With Headquarters in Region	
	Less Than 5 Years	5-10	10-20	Over 20 Years	Number	Percentage of Total
Region	20	27	43	165	136	53.3
Montana	2	--	5	29	18	50.0
Nebraska	4	7	16	64	44	48.4
North Dakota	3	1	4	28	27	75.0
South Dakota	7	13	7	14	23	56.1
Wyoming	4	5	8	19	17	47.2
Multi-State	--	1	3	11	7	46.7
Percent of Total Responses	7.9	10.6	16.9	65.0		100.0
By Selected Industries for Region						
Manufacturing	12	12	30	97	72	47.7
Mining	3	1	3	11	11	55.6
Finance & Insurance	--	1	2	16	14	73.7
Construction	--	--	2	16	15	83.3

Table E-3

ECONOMIC ACTIVITIES
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

<u>Economic Activities</u>	<u>Region</u>	<u>Montana</u>	<u>Nebraska</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Wyoming</u>	<u>Multi-State</u>	<u>Percent of all Responses</u>
Agriculture	3	--	2	--	1	--	--	1.2
Mining	18	2	2	1	1	10	2	7.1
Manufacturing	151	18	68	19	26	16	4	59.2
Finance and/or Insurance	19	5	9	1	2	2	--	7.5
Wholesale and Retail	16	6	3	--	4	1	2	6.3
Transportation	4	1	1	--	--	1	1	1.6
Utility	6	--	--	1	1	1	3	2.4
Construction	18	1	3	9	1	3	1	7.1
Services	20	3	3	5	5	2	2	7.8
Total	255	36	91	36	41	36	15	100.0

PERCENTAGE DISTRIBUTION OF EMPLOYEES BY JOB CLASS/SKILL LEVELS
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

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the distribution of occupation class or skill classifications of the employees of the questionnaire respondents.

Table E-5 presents employers' responses to the question of whether they felt there was sufficient cooperation among the local, State, and Federal governments and the business community. Of all the respondents, 62 percent felt there was insufficient cooperation. The proportion of those feeling there was insufficient cooperation remained high across the various State areas and across selected industrial segments. All respondents to this question whose business was in the mining sector felt that governmental cooperation was insufficient.

A series of questions were asked in the survey concerning the employers' sources of capital. Table E-6 presents the percentage of respondents stating they utilized local sources of capital. This percentage was 45 percent for the whole Region and ranged from 36 to 72 percent across the various States. There was a great variation in this percentage among the various industrial segments ranging from 22 percent for the mining industry to 87 percent for the construction industry. This reflects the fact that mining has very large capital requirements and must thus draw from a larger capital base. The construction industry on the other hand, being relatively fragmented and localized in scope, has traditionally raised much of its capital from local sources such as local commercial bank loans or leases. Table E-7 summarizes survey responses for sources of capital for the Region as a whole and for the various States. The questionnaire asked to rate the various capital sources as "very important", "somewhat important", or of "little importance". A weighting score was developed by assigning these responses values of 3, 2, and 1 respectively and a weighted average was taken among all the questionnaire returns. A higher score thus indicated greater relative importance. The rank of each response was determined by the relative rank of the weighting score.¹ Similar information is provided in Table E-8 except that the survey responses have been tabulated for selected industrial sectors. As Tables E-7 and E-8 indicate, retained earnings and parent corporations who may be located outside the Region are the two most significant sources of financing for the survey respondents.

Table E-9 shows employers' responses to the survey question on reasons for the firm's current location. Responses are tabulated for the Region as a whole and for the individual States. A weighting score system similar to the one previously described was used where responses of "very important", "somewhat important", of "little importance", and of "no importance" were assigned scores of 4, 3, 2, and 1 respectively. Table E-10 presents the same information tabulated for specific industrial segments. While firms in construction, due to the nature of the business, must locate near the market, and those in mining must of course locate at the source of mineral resources, of significance is the fact that manufacturing and finance/insurance firms placed high importance on the quality of the labor force in the Region as an influence on locational decisions.

¹ In all talks where rankings appear, the highest weighting score was given a rank of "1", and the lowest weighting score was given a rank equivalent to the highest number of items (of factors) being ranked. Where "ties" among the weighting scores of factors occurred, the average of all rankings in the group was used.

Table E-5

VIEWS ON INTER-GOVERNMENTAL COOPERATION
 SURVEY OF EMPLOYERS QUESTIONNAIRE
 OLD WEST REGION
 1975

By Area	Sufficient Cooperation		Insufficient Cooperation	
	No.	Percent of Total	No.	Percent of Total
Region	72	38.1	117	61.9
Montana	9	26.5	25	73.5
Nebraska	34	48.6	36	51.4
North Dakota	4	23.5	13	76.5
South Dakota	13	40.6	19	59.4
Wyoming	10	29.4	24	70.6
Multi-State	2	20.0	8	80.0
By Selected Industries for Region				
Manufacturing	45	38.1	73	61.9
Mining	0	0.0	13	100.0
Finance and/or Insurance	7	46.7	8	53.3
Construction	*	*	*	*

* Insufficient data.

Table E-6

PERCENT UTILIZATION OF LOCAL SOURCES OF CAPITAL
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

<u>Firms Utilizing Local Capital Sources</u>	
<u>By Area</u>	
Region	45.1
Montana	41.2
Nebraska	36.0
North Dakota	71.9
South Dakota	60.5
Wyoming	32.4
Multi-State	38.5
<u>By Selected Industries</u> <u>for Region</u>	
Manufacturing	37.9
Mining	22.2
Finance and/or Insurance	56.3
Construction	87.5

Table E-7
INDICATED SOURCES OF CAPITAL BY AREA
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		Multi-State	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Parent Corporation	2.4	2	2.4	2	2.5	1.5	2.0	5	2.1	3	2.3	2	2.6	3
Lease Arrangement	1.8	5	1.6	5	1.7	5.5	2.0	5	1.8	4.5	1.8	4.5	2.0	6
Retained Earnings	2.6	1	2.6	1	2.5	1.5	2.5	1.5	2.7	1	2.4	1	3.0	1
Equity	1.9	4	1.8	4	1.9	4	2.1	3	1.8	4.5	1.8	4.5	2.5	4
Bank Borrowing	2.2	3	2.2	3	2.0	3	2.5	1.5	2.2	2	2.1	3	2.7	2
Other Financial Institutions	1.7	6	1.4	6	1.7	5.5	2.0	5	1.6	6	1.7	6	2.2	5

Table E-8
INDICATED SOURCES OF CAPITAL BY SELECTED ECONOMIC ACTIVITIES
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Rankings of Sources of Capital					
	Manufacturing		Mining		Finance and/or Insurance	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Parent Corporation	2.6	1	2.6	2	1.7	3
Lease Arrangement	1.8	4.5	1.6	6	1.5	4.5
Retailed Earnings	2.5	2	2.7	1	2.8	1
Equity Capital	1.8	4.5	1.9	4	2.2	2
Bank Borrowing	2.1	3	2.2	3	1.5	4.5
Other Financial Institutions	1.7	6	1.7	5	1.2	6
					2.0	4.5
					2.5	1.5
					2.0	4.5
					2.5	1.5
					1.8	6
					2.2	3
					2.5	1.5
					2.0	4.5
					2.5	1.5
					2.0	4.5

Table E-9

REASONS FOR CURRENT LOCATION BY AREA
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Rankings of Reasons for Current Location													
	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		Multi-State	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Size of Labor Force	2.8	6.5	2.6	8	2.9	5	3.0	4.5	3.0	5	2.6	7	2.2	3
Quality of Labor Force	3.2	1	3.0	2.5	3.4	1	3.2	1.5	3.4	1	2.9	3	2.5	6
Favorable Wage Rate	2.9	5	2.7	7	3.0	3	3.0	3.5	3.2	4	2.7	6	2.3	7
Proximity to Market	3.1	2	2.9	4.5	3.1	2	3.2	1.5	2.8	7	3.0	1.5	3.2	2
Proximity to Raw Materials/Suppliers	2.8	6.5	2.3	6	2.5	9	2.7	7	2.6	8	3.0	1.5	3.3	1
Availability of Transportation	3.0	3.5	3.1	1	2.9	5	2.9	5	3.3	2.5	2.8	4.5	3.0	4
Favorable Transportation Rates	2.7	8	2.9	4.5	2.8	7	2.5	8	2.9	6	2.5	8	2.8	5
State and Local Taxes	3.0	3.5	3.0	2.5	2.9	5	2.8	6	3.3	2.5	2.8	4.5	3.1	3

Table E-10

REASONS FOR CURRENT LOCATION BY SELECTED ECONOMIC ACTIVITIES
 SURVEY OF EMPLOYERS QUESTIONNAIRE
 OLD WEST REGION
 1975

Factor	Rankings of Reasons for Current Location					
	Manufacturing		Mining		Finance and/or Insurance	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Size of Labor Force	2.4	8	2.2	3	2.6	5
Quality of Labor Force	3.3	1	2.6	5	3.3	1
Favorable Wage Rate	3.0	5	2.4	7	3.2	2
Proximity to Market	3.0	5	2.7	3.5	3.1	3
Proximity to Raw Materials/Suppliers	2.9	7	3.5	1	1.9	8
Availability of Transportation	3.1	2.5	3.0	2	2.3	6
Favorable Trans- portation Rates	3.0	5	2.7	3.5	2.1	7
State and Local Taxes	3.1	2.5	2.5	6	2.8	4
					2.6	5.5
					2.8	3.5
					2.9	2
					2.8	3.5
					3.1	1
					2.4	7.5
					2.6	5.5
					2.4	7.5

The questionnaire also asked employers to name their major employment-related problem areas. The responses are tabulated in Table E-11 for the Region as a whole and for the States. Again, a weighting score system was used where replies of "very important" were assigned 3, "somewhat important" 2, and of "little importance" 1. Responses to this same question tabulated by economic sector are presented in Table E-12. Of the possible responses, the skill of workers was shown to be of the greatest concern to major employers in the Region.

The employers were also asked to indicate their perception of the importance of various problem areas or bottlenecks which may be constraining or could constrain their business growth. The responses are presented in Table E-13 for the total Region and individual States. The weighting score system assigned 4 to a response of "very important", 3 to "somewhat important", 2 to of "little importance", and 1 to of "no importance". Responses tabulated by industrial sector are presented in Table E-14. Of the possible responses, environmental laws and restrictions were perceived as the greatest constraining factor to business growth. Environmental restrictions were of greatest concern to mining and construction firms as their business activity tends to be very directly affected by environmental issues. However, manufacturing employers rated environmental restrictions as an important constraining factor. Of significance also is the fact that manufacturing firms placed high importance on the availability of utilities as a potentially constraining factor.

3.0 Survey of Public Officials

A questionnaire survey was also developed to obtain views from State public officials regarding attitudes toward and factors affecting economic development in their respective States. A total of 98 questionnaires were mailed to the public officials listed by State in Exhibit E-2. A sample of the questionnaire is presented in Exhibit E-3. The survey response rates are presented in Table E-15 ranging from 50 to 72 percent across the various States.

Table E-16 presents responses to a question of whether respondents felt general economic development had been occurring in their State at an "excessive", "desirable", or "less than desirable" rate. For the Region as a whole, 47 percent of the respondents felt the rate of economic development had been less than desirable. Only in Wyoming did any public officials feel that the rate of economic development may be excessive.

The question was then asked of the public officials to rate the degree of economic growth ("excessive", "desirable", or "less than desirable") by industrial sector.¹ Responses to this question are presented in Table E-17. For the Region as a whole, the transportation, and the agriculture and forestry processing industries showed the greatest indication of having developed at a less-than-desirable rate with 63 and 61 percent,

¹ An attempt was made to determine the attitudes of public officials regarding economic growth and to determine any conflicts with regional potentials and expected growth patterns.

Table E-11

INDICATED MAJOR EMPLOYMENT PROBLEMS BY AREA
 SURVEY OF EMPLOYERS QUESTIONNAIRE
 OLD WEST REGION
 1975

Factor	Rankings of Problems													
	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming		Multi-State	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Size of Local Labor Force	2.0	5	1.7	5	1.9	4	2.0	5	1.9	5	2.3	2.5	1.8	5
Wage Rate	2.2	2.5	2.1	2	2.1	3	2.3	2	2.1	2.5	2.3	2.5	2.3	3
Education of Workers	2.0	4	1.9	3.5	1.8	5	2.2	3	2.0	4	2.1	5	2.5	1.5
Skill of Workers	2.4	1	2.2	1	2.3	1.5	2.5	1	2.5	1	2.5	1	2.5	1.5
Turnover	2.2	2.5	1.9	3.5	2.3	1.5	2.1	4	2.1	2.5	2.2	4	2.1	4

Table E-12

INDICATED MAJOR EMPLOYMENT PROBLEMS BY SELECTED ECONOMIC ACTIVITIES
SURVEY OF EMPLOYERS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Rankings of Problems					
	Manufacturing		Mining		Finance and/or Insurance	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Size of Local Labor Force	1.9	5	2.5	2	1.8	5
Wage Rate	2.1	3	2.4	3	2.2	2
Education of Workers	2.0	4	2.1	4.5	1.9	4
Skill of Workers	2.4	1	3.2	1	2.3	1
Turnover	2.2	2	2.1	4.5	2.0	3
					2.1	2.5
					2.5	1.5
					1.9	5
					2.5	1.5
					2.1	2.5

INF

Factor	Region	
	Weighting Score	Rank
Market Growth/Demand	3.2	2.

Financing of Plant and Equipment

Labor Force Size

Attitude and Appitude of Labor Force

State and Local Taxes

Environmental Laws and Restrictions

Licensing Procedure

Public Attitude Regarding Growth

Availability of Transportation

Land Ownership (e.g., Federal and State Land)

Availability of Construction

Availability of Equipment from Suppliers

Availability of Raw Materials

Housing

Public Investment water, sewer

Availability Public Service.

Availability of Utilities

Vocational Training Program

Other Education of Activities

Availability of Water

Availability of Buildings and/or Plant Sites

5.5
18
12.5
12.5
12.5

2.6
2.8 8.5
2.4 18.5

Table E-14

INDICATED PROBLEMS CONSTRAINING BUSINESS GROWTH BY SELECTED ECONOMIC ACTIVITIES
 SURVEY OF EMPLOYERS QUESTIONNAIRE
 OLD WEST REGION
 1975

Factor	Rankings of Problems							
	Manufacturing		Mining		Finance and/or Insurance		Construction	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Market Growth/Demand	3.0	5.5	3.6	2.5	3.5	1	3.2	5
Financing of Plant and Equipment	2.4	17	2.3	21	2.2	16	3.2	5
Labor Force Size	2.7	11	3.0	12.5	2.2	16	3.0	9
Attitude and Appitude of Labor Force	3.1	4	3.4	6.5	2.8	4	3.4	2
State and Local Taxes	3.2	3	3.5	4.5	3.3	2	2.9	10.5
Environmental Laws and Restrictions	3.3	1.5	3.9	1	2.5	11	3.5	1
Licensing Procedure	2.3	18.5	3.5	4.5	2.2	16	2.5	17
Public Attitude Regarding Growth	2.8	8	3.6	2.5	3.0	3	3.1	7.5
Availability of Transportation	2.8	8	2.9	14.5	2.7	5.5	2.5	17
Land Ownership (e.g., Federal and State Land)	2.0	21	3.4	6.5		20	2.1	21
Availability of Construction	2.2	20	2.5	19	1.6	21	2.8	13
Availability of Equip- ment from Suppliers	2.6	14	3.1	10	2.0	18.5	3.3	3
Availability of Raw Materials	3.0	5.5	3.1	10	2.0	18.5	3.2	5
Housing	2.5	16	2.9	14.5	2.5	11	2.4	19.5
Public Investments (schools, water, sewer, etc.)	2.7	11	2.8	16	2.6	8	2.9	10.5
Availability of Other Public Services	2.6	11	2.5	19	2.6	8	2.8	13
Availability of Utilities	3.3	1.5	3.1	10	2.7	5.5	2.8	13
Vocational Training Program	2.7	11	3.0	12.5	2.4	13.5	3.1	7.5
Other Education or Activities	2.6	14	2.7	17	2.6	8	2.6	15
Availability of Water	2.8	8	3.2	8	2.4	13.5	2.5	17
Availability of Buildings and/or Plant Sites	2.3	18.5	2.5	19	2.5	11	2.4	19.5

STATE OFFICIALS
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

Montana

1. Director, Department of Administration
2. Commissioner, Department of Agriculture
3. Director, Department of Business Regulation
4. Director, Commission on Post-Secondary Education
5. Commissioner of Higher Education, Department of Education
6. Director, Department of Fish and Game
7. Director, Department of Health and Environmental
8. Director, Department of Highway
9. Director, Department of Institutions
10. Director, Department of Intergovernmental Relations
11. Administrator, Municipal Airport, Aeronautics Division
Department of Intergovernmental Relations
12. Senior Industrial Engineer, Economic Development Division,
Department of Intergovernmental Relations
13. Administrator, Human Resources Division, Department of
Intergovernmental Relations
14. Coordinator, Indian Affairs Unit, Department of Intergovernmental
Relations
15. Administrator, Local Government Services Division, Department
of Intergovernmental Relations
16. Governor's Alternate to the Old West Regional Commission
17. Administrator, Planning Division, Department of Intergovernmental
Relations
18. Commissioner, Department of Labor and Industry

19. Commissioner, Department of State Lands
20. Director, Department of Natural Resources and Conservation
21. Superintendent of Public Instruction and Executive Officer of Vocational Education, Office of the Superintendent of Public Instruction
22. Director, Department of Social and Rehabilitation Services

Nebraska

1. Director, Department of Aeronautics
2. Director, State Department of Agriculture
3. Director, Banking Department
4. Director, Department of Economic Development
5. Deputy Commissioner, Commission on Education
6. Director, Environmental Control Agency
7. Executive Officer and Secretary, Board of Trustees of Nebraska State Colleges
8. Executive Director, Nebraska Equal Opportunity Commission
9. Director, Game and Parks Commission
10. Director, Department of Health
11. Investment Officer, State Investment Council
12. Commissioner, Labor Department
13. Director, Nebraska Oil and Gas Commission
14. Director, Public Institutions
15. Director, Public Welfare
16. Executive Secretary, Public Service Commission
17. Director and State Engineer, Department of Roads
18. Director, Nebraska Technical Assistance Agency

19. Director & Secretary, Water Resources
20. Governor's Alternate to the Old West Regional Commission; and
Director, Office of Planning and Programming.

North Dakota

1. Commissioner, Department of Agriculture
2. President, Bank of North Dakota
3. Commissioner, Department of Banking and Financial Institutions
4. Executive Director, Beef Commission
5. Director, Department of Business and Industrial Development
6. State Director, Economic Opportunity
7. Administrator, Office of Energy Management
8. Commissioner, Game and Fish Department
9. Executive Officer, Health Department
10. Commissioner, Board of Higher Education
11. Commissioner, Highway Department
12. Executive Director, Indian Affairs Commission
13. Industrial Commission
14. Commissioner, Labor Department
15. Commissioner, Land Department
16. Milk Stabilization Board
17. Governor's Alternate to the Old West Regional Commission
18. State Liaison Officer, Outdoor Recreation Agency
19. Director, State Planning Division
20. State Superintendent, Public Instruction Department

21. Secretary, Public Service Commission
22. Commissioner, Tax Department
23. State Director, Department of Vocational Education
24. State Engineer, Water Commission
25. Administrator, Wheat Commission

South Dakota

1. Secretary, Department of Agriculture
2. Secretary, Department of Commerce & Consumer Affairs
3. Secretary, Department of Economic & Tourism Development
4. Secretary, Department of Environmental Protection
5. Secretary, Department of Education & Cultural Affairs
6. Secretary, Department of Game, Fish and Parks
7. Secretary, Department of Labor
8. Secretary, Department of Natural Resource Development
9. Secretary, Department of Social Services
10. Secretary, Department of Transportation
11. Commissioner, Bureau of the Budget
12. Commissioner, State Planning Bureau
13. Governor's Alternate to the Old West Regional Commission

Wyoming

1. Executive Director, Community Development Authority
2. Director, State Community Services Administration
3. Executive Director, Department of Economic Planning and Development

4. State Superintendent of Public Instruction, State Department of Education
5. Executive Director, Employment Security Commission of Wyoming
6. State Engineer
7. Department Director, Department of Environmental Quality
8. State Game & Fish Director, Game and Fish Department Staff, Game and Fish Commission
9. State Geologist, Geological Survey of Wyoming
10. Coordinator, Department of Health and Social Services
11. Executive Director, Higher Education Council of Wyoming
12. Superintendent & Chief Engineer, Department Headquarters Staff, Highway Commission
13. Superintendent, Wyoming Industrial Institute
14. Director, Office of Industrial Siting Administration
15. Commissioner, Land Office and Farm Loan Staff
16. Director, Wyoming Recreation Commission
17. Director, Wyoming Travel Commission Staff, Travel Commission
18. Governor's Alternate to the Old West Regional Commission

OLD WEST REGION

(Montana, Nebraska, North Dakota, South Dakota, Wyoming)

SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE

Please check the State by which you are employed.

Montana	<input type="checkbox"/>	South Dakota	<input type="checkbox"/>
Nebraska	<input type="checkbox"/>	Wyoming	<input type="checkbox"/>
North Dakota	<input type="checkbox"/>		

1. During the past fifteen years has general economic development in your State been occurring at:

an excessive rate ☐

a desirable rate ☐

less than a desirable rate ☐

2. How would you categorize the rate of development or growth in size for your State of the following industries?

	<u>Excessive</u>	<u>Desirable</u>	<u>Less Than Desirable</u>
• Agriculture and Forestry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Mining			
- Coal Mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Petroleum and Natural Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Manufacturing			
- Agricultural and Forestry Processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Metal Processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Chemical (inc., coal and petro-related)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Power and Electric Companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<u>Excessive</u>	<u>Desirable</u>	<u>Less Than Desirable</u>
• Transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Financial and Insurance Institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Tourism and Related Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other Businesses (e.g., Trade) and Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Government			
- Federal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- State/Local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Is your State's present business/industry mix considered to be desirable by State governmental and business leaders?

desirable mix ☐

less than desirable mix ☐

If the present business/industry mix is considered less than desirable, what types of business and/or industries are actively being encouraged to locate or expand in the State?

• Agriculture and Forestry	<input type="checkbox"/>	• Transportation	<input type="checkbox"/>
• Mining		• Financial and Insurance Institutions	<input type="checkbox"/>
- Coal Mining	<input type="checkbox"/>	• Tourism and Travel Related Services	<input type="checkbox"/>
- Petroleum and Natural Gas	<input type="checkbox"/>	• Other Businesses (e.g., Trade) and Services	<input type="checkbox"/>
- Other	<input type="checkbox"/>	• Government	
• Manufacturing		- Federal	<input type="checkbox"/>
- Agricultural and Forestry Processing	<input type="checkbox"/>		
- Metal Processing	<input type="checkbox"/>		
- Chemical (inc., coal and petro-related)	<input type="checkbox"/>		
- Other	<input type="checkbox"/>		
• Power and Electric Companies	<input type="checkbox"/>		

4. What specific incentive programs, if any, does your State offer to perspective investors which may result in substantial commercial and industrial growth over the next five (5) years?

5. Which of the following factors are most likely to exert a positive influence on the commercial and industrial development of your State over the next five (5) years?

	<u>Very Important</u>	<u>Somewhat Important</u>	<u>Little Importance</u>	<u>No Importance</u>
availability of raw materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
market growth/demand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
labor force size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
attitude and aptitude skills of labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
willingness of local financial institutions to invest in development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public attitude regarding growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
state and local taxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
licensing procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
environmental laws and restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Exhibit E-3 (cont'd)

	<u>Very Important</u>	<u>Somewhat Important</u>	<u>Little Importance</u>	<u>No Importance</u>
Land ownership (e.g. federal and State land)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of essential business related services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public investments (schools, water, sewer, etc.) and services (police, fire, welfare)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of exist- ing buildings or plant sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (indicate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Have any specific programs been established to restrict or control commercial and industrial development (either the development of a particular industry or business and industry in general) in your State?

7. What factors do you view as actual or potential constraints to commercial and industrial growth in your State over the next five (5) years?

Exhibit E-3 (cont'd)

	<u>Very Important</u>	<u>Somewhat Important</u>	<u>Little Importance</u>	<u>No Importance</u>
lack of sufficient raw materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lack of adequate markets/demand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lack of adequate transportation facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
insufficient size of labor force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lack of sufficient skilled labor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lack of sufficient financing from local private institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public attitudes regarding growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
environmental laws and restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
state and local taxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
licensing procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
land ownership (e.g. federal and state land)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of es- sential business related services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public investments and services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
availability of existing building or plant sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (indicate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Exhibit E-3 (cont'd)

8. Which of the factors (incentives, constraints) cited in questions 5 and 7 will, in your opinion, significantly affect the future commercial and industrial growth of the five-state region during the next five years?

<u>Incentives</u>		<u>Constraints</u>	
availability of raw materials	<input type="checkbox"/>	lack of sufficient raw materials	<input type="checkbox"/>
market growth/demand	<input type="checkbox"/>	lack of adequate markets/demand	<input type="checkbox"/>
labor force size	<input type="checkbox"/>	lack of adequate transportation facilities	<input type="checkbox"/>
attitude and aptitude skills of labor force	<input type="checkbox"/>	insufficient size of labor force	<input type="checkbox"/>
availability of transportation	<input type="checkbox"/>	lack of sufficient skilled labor	<input type="checkbox"/>
willingness of local financial institutions to invest in development	<input type="checkbox"/>	lack of sufficient financing from local private institutions	<input type="checkbox"/>
public attitude regarding growth	<input type="checkbox"/>	public attitudes regarding growth	<input type="checkbox"/>
state and local taxes	<input type="checkbox"/>	environmental laws and restrictions	<input type="checkbox"/>
licensing procedures	<input type="checkbox"/>	state and local taxes	<input type="checkbox"/>
environmental laws and restrictions	<input type="checkbox"/>	licensing procedures	<input type="checkbox"/>
land ownership (e.g. federal and state land)	<input type="checkbox"/>	land ownership(e.g.federal and state land)	<input type="checkbox"/>
availability of essential business related services	<input type="checkbox"/>	availability of essential business related services	<input type="checkbox"/>
availability of utilities	<input type="checkbox"/>	availability of utilities	<input type="checkbox"/>
public investments (schools, water, sewer, etc.) and services (police, fire, welfare)	<input type="checkbox"/>	public investments and services	<input type="checkbox"/>
Availability of existing buildings or plant sites	<input type="checkbox"/>	availability existing of building or plant sites	<input type="checkbox"/>
other (indicate)	<input type="checkbox"/>	other (indicate)	<input type="checkbox"/>
_____	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____	<input type="checkbox"/>	_____	<input type="checkbox"/>

9. Please provide any additional comments on the economy, attitude, life, or the institutions in the five-State (Montana, Nebraska, North Dakota, South Dakota, and Wyoming) Region.

Thank you very much for your cooperation in completing this questionnaire. To assist with our analysis of the potentials and problems of the five-State region, it would be helpful if we could determine your name and organization. However, we also understand that you may wish to remain completely anonymous. Centaur Management Consultants, inc. assures you that should you choose to identify your name and organization there will be no disclosure of specific responses. All information received will be aggregated to assure confidentiality of individual responses.

Name

Organization

Position

I do not wish to disclose my name or organization ☐

Table E-15

RESPONSES TO
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

	<u>Region</u>	<u>Montana</u>	<u>Nebraska</u>	<u>North Dakota</u>	<u>South Dakota</u>	<u>Wyoming</u>
Number of Questionnaires						
Mailed	98	22	20	25	13	18
Received	67	12	10	18	9	12
Percent Responses	62.2	54.5	50.0	72.0	69.2	66.7

Table E-16

ATTITUDES ON GENERAL ECONOMIC DEVELOPMENT
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

Area	Excessive Rate		Desirable Rate		Less Than Desirable Rate	
	No.	Percent	No.	Percent	No.	Percent
Region ¹	3	5.2	28	48.3	27	46.6
Montana	-	-	3	25.0	9	75.0
Nebraska	-	-	*	*	*	*
North Dakota	-	-	10	58.8	7	41.2
South Dakota	-	-	*	*	*	*
Wyoming	3	25.0	7	58.3	2	16.7

1

Total Region includes responses deemed to be insufficient data.

* Insufficient data.

Table E-17

ATTITUDES ON INDUSTRY GROWTH
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

	Region ¹				Montana				Nebraska			
	Excessive No.	Desirable Percent	Less Than Desirable No.	Percent	Excessive No.	Desirable Percent	Less Than Desirable No.	Percent	Excessive No.	Desirable Percent	Less Than Desirable No.	Percent
Agriculture and Forestry	2	3.4	36	61.2	20	34.5	1	9.1	3	72.7	2	18.2
Mining	14	25.9	27	50.0	13	24.1	2	16.7	6	50.0	4	33.3
- Coal	3	5.3	31	54.4	23	40.3	--	--	5	41.7	7	58.3
- Petroleum												
Manufacturing												
- Agricultural and Forestry	2	3.5	20	35.1	35	61.4	2	16.7	2	16.7	8	66.7
- Metal Processing	1	2.0	23	45.1	27	52.9	--	--	5	41.7	7	58.3
- Chemical	4	7.5	30	56.6	19	35.8	1	8.3	5	41.7	6	50.0
Power and Electric	15	25.9	35	60.3	8	13.8	2	16.7	8	66.6	2	16.7
Transportation	--	--	22	37.3	37	62.7	--	--	2	16.7	10	83.3
Financial and Insurance	2	3.6	36	64.3	18	32.1	--	--	6	50.0	6	50.0
Tourism and Related Services	2	3.4	41	70.7	15	25.9	--	--	9	75.0	3	25.0
Other Businesses	--	--	36	63.2	21	36.8	--	--	8	66.7	4	33.3
Government												
- Federal	26	44.8	27	46.6	5	8.6	3	27.3	6	54.5	3	18.2
- State/Local	12	21.1	37	64.9	8	14.0	4	27.3	5	45.5	3	27.3

Table E-17 (cont.)

ATTITUDES ON INDUSTRY GROWTH
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

	North Dakota				South Dakota				Wyoming			
	Excessive No. Percent	Desirable No. Percent	Less Than Desirable No. Percent		Excessive No. Percent	Desirable No. Percent	Less Than Desirable No. Percent		Excessive No. Percent	Desirable No. Percent	Less Than Desirable No. Percent	
Agriculture and Forestry	1 5.6	14 77.8	3 16.6	--	--	*	*	*	--	4 33.3	8 66.7	
Mining	4 25.0	11 68.7	1 6.3	*	*	*	*	*	6 50.0	6 50.0	--	--
- Coal	--	13 76.5	4 23.5	--	--	*	*	*	3 25.0	8 66.7	1 8.3	
- Petroleum	--	--	--	--	--	--	--	--	--	--	--	--
Manufacturing												
- Agricultural and Forestry	--	7 41.2	10 58.8	--	--	--	--	*	--	5 41.7	7 58.3	
- Metal Processing	--	8 57.1	6 42.9	--	--	*	*	*	1 9.1	4 36.4	6 54.4	
- Chemical	1 5.9	11 64.7	5 29.4	--	--	*	*	*	2 18.2	9 81.8	--	--
Power and Electric	7 41.2	10 52.8	--	--	--	*	*	*	5 41.7	7 58.3	--	--
Transportation	--	10 55.6	8 44.4	--	--	*	*	*	--	7 58.3	5 41.7	
Financial and Insurance	--	12 70.6	5 29.4	--	--	*	*	*	--	8 72.7	3 27.3	
Tourism and Related Services	--	12 66.7	6 33.3	--	--	*	*	*	2 16.7	8 66.7	2 16.7	
Other Businesses	--	12 66.7	6 33.3	--	--	*	*	*	--	7 58.3	5 41.7	
Government	8 47.1	9 52.9	--	*	*	*	*	*	6 50.0	5 41.7	1 8.3	
- Federal	--	13 76.5	4 23.5	*	*	*	--	--	4 33.3	7 58.3	1 8.3	
- State/Local	--	--	--	--	--	--	--	--	--	--	--	--

¹ Total region includes responses deemed to be insufficient data.

* Insufficient data.

respectively, of the respondents indicating so. Development in coal mining and power and electric industries showed significant indication of excessive development with 26 percent of the respondents indicating so in each case. In the case of coal mining, however, opinion seemed to be split with 24 percent also indicating that they felt development had been at a less-than-desirable rate.

Table E-18 presents attitudes toward the present industrial mix in the Region and individual States. Overall, 63 percent of the public officials responding felt the present industrial mix to be less-than-desirable. Those who indicated that the present industrial mix is undesirable were asked to indicate which types of industries were actively being encouraged to locate or expend in their State. Replies to this question are presented in Table E-19. The percentages presented indicate the proportion of those who felt the present industrial mix undesirable but who stated that the particular industry was being actively encouraged. Agriculture and forestry, agriculture and forestry processing, and tourism and travel, all showed very high rates of encouragement (78, 78, and 84 percent respectively). Table E-20 presents a summary of incentive programs for new industrial investment offered by the various States as indicated by the survey respondents.

The survey asked the public officials to rate the importance of various factors in contributing to industrial development in their State over the next five years. Table E-21 presents replies to this question. A weighting score system was used, assigning 4 to a reply of "very important", 3 to "somewhat important", 2 to of "little importance", and 1 to of "no importance". The single most important factor was perceived to be the availability of raw materials. Public attitude regarding growth was also rated important.

Based on survey responses, Table E-22 summarizes any specific programs which have been established to restrict or control commercial and industrial development in the particular States. Table E-23 presents the officials' views of the importance of various factors constraining commercial and industrial growth. A weighting score system, like the one in Table E-21, was used. Public attitudes and environmental laws and restrictions were viewed as the two most important constraining factors.

The public officials were then asked to check the various factors listed in Tables E-21 or E-23 which they felt would either be incentives or constraints to future commercial or industrial growth in the whole Region during the next five years. The percentage of respondents checking each factor as an incentive or constraint are presented in Table E-24. Availability of raw materials and availability of utilities were most often checked as incentives (86 and 73 percent respectively). There was greater diversity of opinion regarding potential constraining factors. Availability of local financing, public attitudes, state and local taxes, licensing procedures, as well as market factors were all frequently mentioned.

Table E-18

ATTITUDES ON INDUSTRY MIX
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

<u>Area</u>	<u>Desirable Mix</u>		<u>Less Than Desirable Mix</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
Region ¹	22	37.3	37	62.7
Montana	2	16.7	10	83.3
Nebraska	*	*	*	*
North Dakota	10	55.6	8	44.4
South Dakota	*	*	*	*
Wyoming	4	33.3	8	66.7

¹ Total Region includes responses deemed to be insufficient data.

* Insufficient data.

Table E-19

INDUSTRIES ENCOURAGEMENT WHERE INDUSTRIAL
WAS UNDESIRABLE
SURVEY OF PUBLIC OPINIONS QUESTIONNAIRE
OLD WEST REGION
1975

	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	No. Responses	Percent of Total Undesirable	No. Responses	Percent of Total Undesirable	No. Responses	Percent of Total Undesirable	No. Responses	Percent of Total Undesirable	No. Responses	Percent of Total Undesirable	No. Responses	Percent of Total Undesirable
Agriculture and Forestry	29	78.4	8	80.0	3	100.0	5	62.5	6	75.0	7	87.5
Mining	7	18.9	1	10.0	--	--	4	50.0	1	12.5	1	12.5
- Coal	18	48.6	6	60.0	3	100.0	3	37.5	2	50.0	2	25.5
- Petroleum												
Manufacturing												
- Agricultural and Forestry	29	78.4	8	80.0	2	66.7	5	62.5	3	100.0	6	75.0
- Metal Processing	9	24.3	1	10.0	1	33.3	--	--	1	50.0	3	37.5
- Chemical	5	13.5	1	10.0	--	--	2	25.0	1	12.5	1	12.5
Power and Electric	7	18.9	1	10.0	--	--	3	37.5	1	12.5	2	25.5
Transportation	21	56.8	4	40.0	2	66.7	4	50.0	6	75.0	5	62.5
Financial and Insurance	14	37.8	3	30.0	1	33.3	3	37.5	4	50.0	3	37.5
Tourism and Travel Related Services	31	83.8	10	100.0	3	100.0	6	75.0	8	100.0	4	50.0
Other Businesses	22	59.5	5	50.0	1	33.3	5	62.5	7	87.5	4	50.0
Government - Federal	4	10.8	3	30.0	--	--	--	--	--	--	--	--

STATE INCENTIVE PROGRAMS OFFERING TO INVESTORS

- Montana:
1. Industrial Tax Incentive (see next page)
 2. Industrial revenue bonds.
 3. Site Selection Assistance.
 4. State Funded Training Assistance.
 5. Financial Assistance for Renewable Resource Development.
 6. Possible Joint Ventures for large projects of state interest.
- Nebraska:
1. The state provides information and contacts to businesses and localities, and helps the locality know things needed such as buildings and advises of federal programs.
 2. The Industrial Development Act provides for issuance of tax exempt bonds by citing for industrial development.
 3. Local Industrial Development Loans ID organizations.
 4. Public plant location assistance.
 5. Labor surveys.
 6. IDA bonds around cities of 10,000 - 50,000 population give breaks to prospective business; corporate taxes are competitive with many states.
- North
Dakota:
1. Tax incentives.
 2. The Business and Industrial Development Department acts as the official liaison between persons seeking to locate new business.
 3. Bonding assistance.
- South
Dakota:
1. Certain local property tax concessions, no income and corporate tax.
 2. Tax free industrial revenue bonds, i.e., for land, building, and equipment.
 3. State funded training assistance - right to work.
 4. Freeport laws.
 5. Five year tax moratorium on new construction.
 6. Division of Industrial Development's liaison programs between companies, communities, financial institutions, and state government.
- Wyoming:
1. Tax incentives; no corporate income tax, no personal income tax, no gross receipt tax, no excise tax, and no inventory tax.
 2. Industrial Revenue Bond Act, a privately financed state development corporation.
 3. Depreciation schedules.

Table E-20 (cont.)

MONTANA INDUSTRIAL TAX INCENTIVES

- (1) A 77% property tax reduction during the first three years of operation is provided on new industrial property utilized by industries that engage in mechanical or chemical transformation of materials or substances into new products in the manner defined as manufacturing in the 1972 Standard Industrial Classification Manual, with certain qualifications.
- (2) New and existing industries which locate in, or expand into, already established industrial areas within Montana can, after January 1, 1976, receive a property tax reduction of 50%.
- (3) Inventories such as raw materials, work in progress, and general business inventories are provided a 77% property tax reduction.
- (4) A 1% tax credit, based upon the total new wages paid, is provided for the first three years to new and expanding industries engaged in the mechanical or chemical transformation of materials or substances into new products. "Expanding" means to expand a present operation sufficiently to increase total permanent jobs by 30%.
- (5) A one-mill levy, upon an affirmative vote from a majority of qualified voters, is authorized for purposes of economic development within a city, county or town. Funds derived may be used for developing industrial parks, buildings to house manufacturing operations, conducting preliminary feasibility studies, and other activities associated with economic development.
- (6) Newly irrigated farmlands are taxed on a dry-land basis for the first three years in order to promote practices of intensive agriculture.

Table E-21

FACTORS POSITIVELY INFLUENCING STATE COMMERCIAL AND
INDUSTRIAL GROWTH
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Availability of raw materials	3.7	1	3.8	1	3.5	3	3.8	1	3.4	5.5	3.8	1
Market growth/demand	3.2	6.5	2.9	8	3.6	1	3.4	7	2.8	11	3.0	7.5
Labor force size	2.8	13.5	2.5	14	3.3	7.5	2.9	14	2.8	8.5	2.8	11
Attitude and aptitude skills of labor force	3.2	6.5	2.9	8	3.5	3	3.2	10.5	3.7	1	2.7	13.5
Availability of transportation	3.2	6.5	2.6	13	3.5	3	3.4	7	3.1	5.5	3.4	3
Willingness of local financial institutions to invest in development	3.2	6.5	3.0	4.5	3.4	5.5	3.4	7	3.0	7	2.9	9
Public attitude regarding growth	3.3	2	3.0	4.5	3.1	9.5	3.7	2	3.4	2	2.8	11
State & local taxes	3.2	6.5	2.8	10	3.1	9.5	3.5	4.5	3.0	8.5	3.3	5
Licensing procedures	2.7	15	2.3	15	2.7	14	2.8	15	2.7	13.5	2.8	11
Environmental laws and Restrictions	3.2	6.5	3.0	4.5	3.0	12	3.6	3	2.8	12.5	3.3	5
Land ownership	3.1	11	3.1	2	2.6	15	3.3	9	2.6	13.5	3.6	2
Availability of essential business related services	2.8	13.5	2.7	11.5	3.3	7.5	2.9	13	2.9	10	2.5	15

Table E-21 (cont.)

FACTORS POSITIVELY INFLUENCING STATE COMMERCIAL AND
INDUSTRIAL GROWTH
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Availability of utilities	3.2	6.5	3.0	4.5	3.0	12	3.2	10.5	3.4	3.5	3.0	7.5
Public investment	3.2	6.5	2.7	11.5	3.4	5.5	3.5	4.5	3.3	3.5	3.3	5
Availability of existing buildings as plant sites	2.9	12	2.9	8	3.0	12	3.1	12	2.7	13.5	2.7	13.5

PROGRAMS BY STATE TO RESTRICT INDUSTRIAL DEVELOPMENT

- Montana:
1. Laws have been passed to ensure that large-scale projects meet all environmental standards before state approval is granted, e.g., Environmental Laws and Land Use Laws.
 2. Facility Siting Legislation.
 3. Moratorium on additional use of Yellowstone River.
 4. Water, reclamation and strip mining laws, EPA considerations.
- Nebraska:
1. Zoning laws.
 2. Some environmental laws do restrict location of high waste industry such as leather tanning and some food processors.
- North
Dakota:
1. Tax laws on coal-mining industry.
 2. Energy facility siting regulated by Public Service Commission.
 3. The development of the state's coal resources and water resources are watched and to a degree controlled closely, but no specific program to restrict development.
 4. Environmental laws, air, land, and water to restrict some rapid growth of electrical and gasification industry.
 5. Plant siting control, transmission siting.
 6. There has been some regulatory guidelines placed on the development of coal resources. These have been enacted upon by state government in a regulatory capacity only.
- South
Dakota:
1. Various environmental regulations, including water and air quality and limited land use.
 2. Moratorium on mining, restricted strip mining, ore tax - 1975 legislation.
- Wyoming:
1. Restrictive environmental quality act.
 2. Land use and plant siting legislation.
 3. The 12-point program of the USGS-BLM.
 4. Some localities have established restrictive zoning laws.
 5. Industrial development information and siting act.

Table E-23

FACTORS CONSTRAINING STATE COMMERCIAL AND
INDUSTRIAL GROWTH
SURVEY OF PUBLIC OFFICIALS QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Region		Montana		Nebraska		North Dakota		South Dakota		Wyoming	
	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank	Weighting Score	Rank
Lack of Sufficient Raw Materials	2.4	15	1.8	15	3.0	3	2.6	15	2.2	9	1.9	15
Lack of Adequate Markets/Demand	2.9	6.5	3.2	6	3.3	1	2.9	9	3.1	4	2.3	13.5
Insufficient Size of Labor Force	3.1	3	3.3	3	3.0	3	3.1	3.5	3.3	2	2.8	9.5
Lack of Adequate Transportation Facilities	2.7	12.5	2.2	14	2.4	11	2.9	9	2.7	11.5	3.1	5.5
Lack of Sufficient Skilled Labor	2.9	6.5	2.6	11.5	2.8	7.5	3.0	5	2.6	13	3.3	2
Lack of Sufficient Financing From Local Private Institutions	2.9	6.5	3.3	3	2.8	7.5	2.9	9	3.4	1	2.5	11
Public Attitudes Regarding Growth	3.3	1	3.3	3	2.3	13	3.8	1	3.1	4	3.4	1
Environmental Laws and Institutions	3.2	2	3.5	1	3	3	3.5	2	2.7	11.5	3.1	5.5
State and Local Taxes	2.7	12.5	3.0	6	2.3	13	2.9	9	2.9	6.5	2.3	13.5
Licensing Procedure	2.6	14	3.0	6	1.9	15	2.8	13.5	2.4	14	2.4	12
Land Ownership	2.8	10.5	2.9	8	2.3	13	3.1	3.5	2.0	15	3.1	5.5
Availability of Essential Business Related Services	2.9	6.5	2.6	11.5	2.6	10	2.9	9	3.1	4	3.1	5.5
Availability of Utilities	2.9	6.5	2.7	10	2.9	5.5	2.9	9	2.9	6.5	3.2	3
Public Investment and Services	2.9	6.5	2.4	13	2.7	9	2.9	9	2.8	9	3.0	8
Availability of Existing Building or Plant Sites	2.3	16.5	2.6	9	2.9	5.5	2.6	10.5	2.8	9	2.8	9.5

Table E-24

FACTORS INFLUENCING REGIONAL COMMERCIAL/INDUSTRY GROWTH
SURVEY OF PUBLIC OFFICIAL QUESTIONNAIRE
OLD WEST REGION
1975

Factor	Region				Montana				Nebraska			
	Incentives		Constraints		Incentives		Constraints		Incentives		Constraints	
	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent
Raw Materials	42	85.7	7	14.3	11	100.0	--	--	6	66.7	3	33.3
Market Growth	15	35.7	27	64.3	2	18.2	9	81.8	3	37.5	5	62.5
Labor Force Size	13	36.1	23	63.9	2	20.0	8	80.0	3	50.0	3	50.0
Skills of Labor	19	54.3	16	45.7	4	80.0	1	20.0	5	71.4	2	28.6
Transportation	17	48.6	18	51.4	2	40.0	3	60.0	3	75.0	1	25.0
Financing from Local Private Institutions	13	38.2	21	61.8	3	42.9	4	57.1	2	40.0	3	60.0
Public Attitude	18	34.6	34	65.4	3	25.0	9	75.0	3	50.0	3	50.0
State and Local Taxes	19	38.8	30	61.2	2	22.2	7	77.8	3	50.0	3	50.0
Licensing Procedure	11	45.8	13	54.2	1	20.0	4	80.0	4	100.0	--	--
Environmental Laws	13	59.1	9	40.9	2	28.6	5	71.4	4	100.0	--	--
Land Ownership	19	55.9	15	44.1	4	50.0	4	50.0	3	100.0	--	--
Availability of Business	7	35.0	13	65.0	2	100.0	--	--	1	25.0	3	75.0
Availability of Utilities	27	73.0	10	27.0	6	66.7	3	33.3	6	66.7	3	33.3
Public Investment	18	43.9	23	56.1	4	50.0	4	50.0	4	66.7	2	33.3
Availability of Existing Buildings on Plant Sites	15	60.0	10	40.0	4	80.0	1	20.0	5	100.0	--	--

Table E-24 (cont.)

FACTORS INFLUENCING REGIONAL COMMERCIAL/INDUSTRY GROWTH
SURVEY OF PUBLIC OFFICIAL QUESTIONNAIRE
OLD WEST REGION
1975

Factor	North Dakota				South Dakota				Wyoming			
	Incentives		Constraints		Incentives		Constraints		Incentives		Constraints	
	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent	No. of Responses	Percent
Raw Materials	13	81.3	3	18.7	5	100.0	--	--	10	83.3	2	16.7
Market Growth	5	41.7	7	58.3	3	50.0	3	50.0	4	40.0	6	60.0
Labor Force Size	5	50.0	5	50.0	3	37.5	5	62.5	3	37.5	5	62.5
Skills of Labor	6	54.5	5	45.5	7	77.8	2	22.2	1	14.3	6	85.7
Transportation	7	50.0	7	50.0	--	--	--	--	5	38.5	8	61.5
Financing from Local Private Institutions	4	28.6	10	71.4	1	14.3	6	85.7	4	66.7	2	33.3
Public Attitude	6	31.6	13	68.4	3	50.0	3	50.0	3	30.0	7	70.0
State and Local Taxes	5	33.3	10	66.7	4	44.4	5	55.6	6	42.9	8	57.1
Licensing Procedure	1	14.3	6	85.7	3	50.0	3	50.0	3	75.0	1	25.0
Environmental Laws	6	85.7	1	14.3	2	66.7	1	33.3	1	20.0	4	80.0
Land Ownership	6	60.0	4	40.0	1	33.3	2	66.7	6	54.5	5	45.5
Availability of Business	2	40.0	3	60.0	2	40.0	3	60.0	1	16.7	5	83.3
Availability of Utilities	9	100.0	--	--	4	66.7	2	33.3	3	42.9	4	57.1
Public Investment	5	35.7	9	64.3	3	42.9	4	57.1	3	37.5	5	62.5
Availability of Existing Buildings on Plant Sites	1	16.7	5	83.3	3	75.0	1	25.0	3	50.0	3	50.0

APPENDIX F

METHODOLOGY AND RESULTS FOR EARNINGS,

EMPLOYMENT, POPULATION

AND INCOME PROJECTIONS

1.0 Introduction and Summary of Approach

This appendix presents all projections of earnings, employment, population, net migration, and income for 1980 and 1985 by sub-State area. In addition, this appendix includes a detailed description of the methodology used to develop these projections. Four sets of projections are presented in this appendix. The "adjusted" OBERS projections reflect the expected outcomes before major energy and other developments are considered. Three scenarios (i.e., expected baseline, low estimate alternative, and high estimate alternative) are formulated for energy and other developments and are added to the "adjusted" OBERS baseline projections. Hence, there are only three projections of importance: expected baseline, and two variations (i.e., low and high alternatives), reflecting either faster or slower rates of development especially in the energy area.

A comprehensive description of the procedures used in performing these projections appears in subsequent sections of this appendix and in several related appendices. In summary, however, the projections were arrived at in the following manner:

1. The OBERS¹ projections of earnings (i.e., wages and salaries, other labor income, plus proprietors' income) by industrial sector and sub-State area were used as the base for the projections of earnings (see Section 2.0).
2. Earnings multipliers were developed (see Section 3.0) to relate changes in earnings in non-basic (secondary) industrial sectors to changes in earnings in basic (export) industrial sectors. These multipliers were used in making various adjustments to the OBERS projections.²
3. An employment projection procedure (see Section 4.0) was devised by preparing a series of earnings to employment equations based on the historical data. This analysis of the ratios of earnings to employment was performed for all sectors and States.
4. Adjustments were made to the OBERS earnings projections by industrial sector to reflect factors (other than energy developments) which were not accounted for in the OBERS earnings projections (see Sections 5.0 and 6.0). These adjustments coupled with the OBERS earnings projections are referred to as the "adjusted" OBERS baseline projections.

¹ The OBERS projections are developed periodically as a joint effort between the Department of Agriculture and the Department of Commerce for the U.S. Water Resources Council. For a complete description refer to U.S. Water Resources Council, 1972 OBERS Projections, Vol. 1, April, 1974.

² This procedure allowed for capturing the gross industrial linkages (by major sector) in a geographical area. Other more exacting approaches (e.g., input-output) would provide more detail in tracing industrial linkages, but could not be justified due to the large amount of time and money required to develop such models for the Region.

5. Employment projections by sector were developed from the "adjusted" earnings projections and from the analysis of the ratios of earnings to employment by sector (see Sections 4.0 and 6.0).
6. "Adjusted" OBERS baseline projections of earnings and employment by sector were increased to reflect three alternative (i.e., expected, low and high) growth paths for energy and other major developments (Appendix G provides details on how these alternatives were developed).
7. Natural increase population projections (before migration) were developed by age and sex and by sub-State area (see Section 7.0 and Appendix H). These projections are based upon the age and sex distribution of the 1970 population and projections of fertility rates and survival rates.
8. Labor supply projections¹ for only the natural increase population (i.e., before migration) by sub-State area were developed from the projections of natural increase population and projections of employment participation ratios by age and sex (see Section 7.0).
9. Net migration (see Section 7.0) by age and sex and by sub-State area was computed by comparing labor supply in the natural increase populations with the demand for labor. Projections of total population by age and sex were developed by adding projections of net migration to the natural increase population projections.
10. Personal income was estimated by using the projections of the ratio of personal income to earnings and the projections of earnings (see Section 8.0). And, of course, per capita income was projected by sub-State area by dividing the projections of personal income by the population projections.

2.0 OBERS Earnings Projections

The OBERS projections of earnings were made in 1972 and incorporate income data through 1971 and employment data through 1970.² The projections were made in two major steps. First, the national economy was projected in industrial detail for 1980 and 1985. Secondly, these national totals were distributed regionally in accordance with the projected trends in the regional distributions of economic activities. The OBERS projections of earnings by industrial sector for the sub-State areas in the Old West Region were tabulated in a special computer printout obtained from the Bureau of Economic Analysis (BEA), Regional Economics Division, U.S. Department of Commerce in June, 1975.

¹ Including only employed persons; that is, excluding unemployed persons.

² U.S. Water Resources Council, op. cit.

The OBERS projections are based on long run or secular trends and ignore the cyclical fluctuations which characterize the short run path of the economy. The general assumptions that underlie the projections are as follows:

1. Growth of population will be conditioned by a fertility rate which represents "replacement level fertility."
2. Nationally, reasonably full employment, represented by a 4 percent unemployment rate, will prevail at the points for which projections are made. As in the past, unemployment will be disproportionately distributed regionally, but the extent of disproportionality will diminish.
3. The projections are assumed to be free of the immediate and direct effects of wars.
4. Continued technological progress and capital accumulation will support a growth in private output per man-hour of 2.9 percent annually.
5. The new products that will appear will be accommodated within the existing industrial classification system, and, therefore, no new industrial classifications are necessary.
6. Growth in output can be achieved without ecological disaster or serious deterioration, although diversion of resources for pollution control will cause changes in the industrial mix of output.

The regional projections are based on the following additional assumptions:

1. Most factors that have influenced historical shifts in regional "export" industry location will continue into the future with varying degrees of intensity.
2. Trends toward economic area self-sufficiency in local-service industries will continue.
3. Workers will migrate to areas of economic opportunities and away from slow-growth or declining areas.
4. Regional earnings per worker and income per capita will continue to converge toward the national average.
5. Regional employment/population ratios will tend to move toward the national ratio.

These projections of earnings by industrial sector and by sub-State area provide the underlying base upon which the projections contained in this study were developed. However, as will be pointed out below, the OBERS projections of earnings were adjusted, extensively in some sub-State areas, in order to more accurately reflect recent and anticipated economic developments.

3.0 Earnings Multipliers

Many of the adjustments to the OBERS earnings projections necessitated some means of linking changes in earnings in one sector with changes in earnings in other sectors. This linkage was accomplished through the use of earnings multipliers. The technique used to develop earnings multipliers by sub-State area is similar to that already used in a study for the Old West Regional Commission and elsewhere in the literature.¹ This method assumes that certain sectors are basic or export, that is, they produce goods or services which bring money into the area from outside areas. This money is spent in the area or Region, generating additional jobs and earnings for other people in the Region before it eventually leaks out. The determination of basic earnings in each sub-State area was based on the following criteria:

1. All agriculture, mining, forestry, fisheries and Federal Government earnings were considered basic.
2. All manufacturing earnings, except that portion of food and kindred products, and printing and publishing whose sub-State area share of earnings was not in excess of the national share of earnings of these sectors, were considered basic.
3. Those portions of sub-State area earnings in transportation (broken out into rail, truck and other), communications, public utilities, wholesale trade, finance, insurance, real estate, and business services which were in excess of the national proportion of earnings of these sectors were considered basic.
4. All transfer payments, excluding property income, were considered basic.
5. That portion of State and local government earnings whose sub-State area share of all sub-State area earnings exceeds the State ratio of State and local earnings to total earnings was considered basic.

Thus, the earnings multipliers for the sub-State areas were defined as the ratio of total earnings (plus transfer payments) to basic or export

1

See R. A. Luken, Economic and Social Impacts of Cost Development in the 1970's for Mercer County, North Dakota, Thomas E. Carroll Associates, Washington, D.C., October, 1974. This approach is a variation of that devised in M. J. Wistisen and G. T. Nelson, Kaparowits Socio-Economic Study, Center for Business and Economic Research, Brigham Young University, Provo, Utah, 1973.

earnings. The multipliers were estimated for 1970 and 1972 using
1) earnings data for 39 industry sectors by sub-State area (data obtained on a special computer printout from BEA, April 27, 1975), and
2) supplementary data on Federal Government transfer payments by State. Since there was some differences in the multipliers between 1970 and 1972, due to fluctuations in economic conditions, it was felt that a reasonable multiplier to use for purposes of this study would be an average of the multipliers for the two years. These multipliers are shown in Table F-1, and it is believed that the multipliers presented reasonably approximate sectorial linkages in the Region.

Explicit employment multipliers were not developed for this study. Given the methodology, such multipliers were not necessary since sectorial employment projections were derived from projections of sectorial earnings. However, it is relatively simple to compute the implicit employment multipliers associated with changes in earnings (and thus, employment) in a basic sector and the generated change in earnings (and thus, employment) in the non-basic sectors.

4.0 Employment Projection Procedure

The OBERS data did not include projections of employment by sector. It was therefore necessary, for purposes of this study, to develop a method whereby the earnings projections could be translated into employment. This was accomplished through a series of equations, estimated using least squares regression analysis, which linked employment and earnings by sector over time.

The equations estimated for each State and industrial sector along with relevant statistics are listed in Exhibit F-1 by State.¹ The equations were calibrated using the sectorial earnings and employment data contained in Chapter VIII. It should be noted that equations were not estimated for the agricultural sectors. Agricultural employment and earnings were determined exogenously as explained in the next section of this appendix.

¹ It was necessary to use State data because BEA was able to provide data for only three points in time (1968, 1970 and 1972) for the sub-State areas. This was insufficient to develop a satisfactory trend for relating earnings to employment.

Table F-1

EARNINGS MULTIPLIERS¹
 BY SUB-STATE AREA
 OLD WEST REGION

Montana	
Northeast	2.2
Southeast	2.4
West	2.2
Nebraska	
Central	2.3
East	2.5
Northeast	2.2
Southeast	2.6
West	2.3
North Dakota	
Northeast	2.2
Northwest	2.2
Southeast	2.5
Southwest	2.4
South Dakota	
Northeast	2.3
Southeast	2.4
West	2.1
Wyoming	
East	2.3
Northwest	2.4
Southwest	2.0

¹
 Defined as total earnings divided by basic earnings.

Exhibit F-1

Equations Linking Employment and Earnings:

Definitions	-	ln	=	Natural logarithm
		EM	=	Sector employment (100's)
		ER	=	Sector earnings (\$100,000's)
		T	=	Time expressed as last two digits of the year
		R ²	=	Coefficient of determination
		d.f.	=	Degrees of freedom

Note: The number in parentheses below the coefficients is the t-statistic.

MONTANA

Manufacturing

$$\ln(ER/EM) = .8348 + .01444 \cdot T$$

(11.82)

$$R^2 = .959 \quad d.f. = 7$$

Mining

$$\ln(ER/EM) = .9041 + .01454 \cdot T$$

(8.21)

$$R^2 = .931 \quad d.f. = 6$$

Construction

$$\ln(ER/EM) = 1.18176 + .01290 \cdot T$$

(6.56)

$$R^2 = .878 \quad d.f. = 7$$

Transportation, Communications, and Utilities

$$\ln(ER/EM) = .5088 + .02140 \cdot T$$

(17.36)

$$R^2 = .980 \quad d.f. = 7$$

Trade¹

$$\ln(ER/EM) = .7698 + .01587 \cdot T$$

(13.07)

$$R^2 = .966 \quad d.f. = 7$$

Finance, Insurance, and Real Estate¹

$$\ln(ER/EM) = .7698 + .01587 \cdot T$$

(13.07)

$$R^2 = .966 \quad d.f. = 7$$

Service¹

$$\ln(ER/EM) = .7698 + .01587 \cdot T$$

(13.07)

$$R^2 = .966 \quad d.f. = 7$$

Exhibit F-1 (cont'd)

MONTANA (cont'd)

Federal Government

$$\ln(ER/EM) = .6055 + .02192 \cdot T$$

(7.01)

$$R^2 = .891 \quad d.f. = 7$$

State and Local Government

$$\ln(ER/EM) = .1323 + .02076 \cdot T$$

(9.64)

$$R^2 = .939 \quad d.f. = 7$$

NEBRASKA

Manufacturing

$$\ln(ER/EM) = - .01511 + .02623 \cdot T$$

(16.92)

$$R^2 = .983 \quad d.f. = 6$$

Mining

$$EM = 11.979 + .2163 \cdot ER - .2484 \cdot T$$

(9.74) (-3.11)

$$R^2 = .960 \quad d.f. = 6$$

Construction

$$\ln(ER/EM) = .3024 + .02537 \cdot T$$

(13.37)

$$R^2 = .973 \quad d.f. = 6$$

Transportation, Communication, and Utilities

$$\ln(ER/EM) = - .2020 + .03146 \cdot T$$

(29.28)

$$R^2 = .993 \quad d.f. = 7$$

Trade

$$\ln(ER/EM) = 1.1183 + .006496 \cdot T$$

(7.00)

$$R^2 = .907 \quad d.f. = 6$$

Finance, Insurance, and Real Estate

$$\ln(ER/EM) = .3272 + .02226 \cdot T$$

(8.68)

$$R^2 = .938 \quad d.f. = 6$$

Service

$$\ln(ER/EM) = .1788 + .01937 \cdot T$$

(9.99)

$$R^2 = .952 \quad d.f. = 6$$

Exhibit F-1 (cont'd)

NEBRASKA (cont'd)

Federal Government

$$\begin{aligned}\ln(ER/EM) &= .06125 + .02933 \cdot T \\ &\quad (14.73) \\ R^2 &= .973 \quad d.f. = 7\end{aligned}$$

State and Local Government

$$\begin{aligned}\ln(ER/EM) &= - .2059 + .02517 \cdot T \\ &\quad (34.54) \\ R^2 &= .996 \quad d.f. = 6\end{aligned}$$

NORTH DAKOTA

Manufacturing

$$\begin{aligned}\ln(ER/EM) &= .1222 + .02224 \cdot T \\ &\quad (5.79) \\ R^2 &= .870 \quad d.f. = 6\end{aligned}$$

Mining

$$\begin{aligned}EM &= - 1.217 + .16361 \cdot ER \\ &\quad (11.95) \\ R^2 &= .960 \quad d.f. = 6\end{aligned}$$

Construction

$$\begin{aligned}\ln(ER/EM) &= .6871 + .01898 \cdot T \\ &\quad (4.71) \\ R^2 &= .816 \quad d.f. = 6\end{aligned}$$

Transportation, Communications, and Utilities

$$\begin{aligned}\ln(ER/EM) &= .2959 + .02324 \cdot T \\ &\quad (14.51) \\ R^2 &= .972 \quad d.f. = 7\end{aligned}$$

Exhibit F-1 (cont'd)

NORTH DAKOTA (cont'd)

Trade¹

$$\begin{aligned}\ln(ER/EM) &= .7625 + .01395 \cdot T \\ &\quad (5.55) \\ R^2 &= .837 \quad d.f. = 7\end{aligned}$$

Finance, Insurance, and Real Estate

$$\begin{aligned}\ln(ER/EM) &= .2340 + .02249 \cdot T \\ &\quad (5.25) \\ R^2 &= .821 \quad d.f. = 7\end{aligned}$$

Services¹

$$\begin{aligned}\ln(ER/EM) &= .7625 + .01395 \cdot T \\ &\quad (5.55) \\ R^2 &= .837 \quad d.f. = 7\end{aligned}$$

Federal Government²

$$\begin{aligned}\ln(ER/EM) &= .6550 + .02055 \cdot T \\ &\quad (8.98) \\ R^2 &= .942 \quad d.f. = 6\end{aligned}$$

State and Local Government

$$\begin{aligned}\ln(ER/EM) &= .6992 + .00945 \cdot T \\ &\quad (4.40) \\ R^2 &= .763 \quad d.f. = 7\end{aligned}$$

SOUTH DAKOTA

Manufacturing

$$\begin{aligned}\ln(ER/EM) &= - .002254 + .02443 \cdot T \\ &\quad (11.44) \\ R^2 &= .963 \quad d.f. = 6\end{aligned}$$

Exhibit F-1 (cont'd)

SOUTH DAKOTA (cont'd)

Mining

$$\ln(ER/EM) = .669 + .01243 \cdot T$$

(5.76)

$$R^2 = .869 \quad d.f. = 6$$

Construction

$$EM = 113.617 + .1327 \cdot ER - 1.4361 \cdot T$$

(8.94) (-4.04)

$$R^2 = .943 \quad D.F. = 7$$

Transportation, Communications, and Utilities

$$\ln(ER/EM) = - .006117 + .02660 \cdot T$$

(19.69)

$$R^2 = .987 \quad d.f. = 6$$

Trade¹

$$\ln(ER/EM) = .4602 + .01776 \cdot T$$

(12.15)

$$R^2 = .967 \quad d.f. = 6$$

Finance, Insurance, and Real Estate¹

$$\ln(ER/EM) = .4602 + .01776 \cdot T$$

(12.15)

$$R^2 = .967 \quad d.f. = 6$$

Federal Government

$$\ln(ER/EM) = .8255 + .01792 \cdot T$$

(9.87)

$$R^2 = .951 \quad d.f. = 6$$

State and Local Government

$$\ln(ER/EM) = .1046 + .01780 \cdot T$$

(7.20)

$$R^2 = .896 \quad d.f. = 7$$

Exhibit F-1 (cont'd)

WYOMING

Manufacturing

$$\begin{aligned}\ln(ER/EM) &= .9475 + .01405 \cdot T \\ &\quad (12.55) \\ R^2 &= .963 \quad d.f. = 7\end{aligned}$$

Mining

$$\begin{aligned}\ln(ER/EM) &= 1.0358 + .01427 \cdot T \\ &\quad (4.73) \\ R^2 &= .788 \quad d.f. = 7\end{aligned}$$

Construction

$$\begin{aligned}\ln(ER/EM) &= .3483 + .02521 \cdot T \\ &\quad (12.98) \\ R^2 &= .971 \quad d.f. = 6\end{aligned}$$

Transportation, Communications, and Utilities

$$\begin{aligned}\ln(ER/EM) &= .5263 + .02136 \cdot T \\ &\quad (12.32) \\ R^2 &= .962 \quad d.f. = 7\end{aligned}$$

Trade¹

$$\begin{aligned}\ln(ER/EM) &= .7847 + .01637 \cdot T \\ &\quad (9.94) \\ R^2 &= .952 \quad d.f. = 6\end{aligned}$$

Finance, Insurance, and Real Estate¹

$$\begin{aligned}\ln(ER/EM) &= .7847 + .01637 \cdot T \\ &\quad (9.94) \\ R^2 &= .952 \quad d.f. = 6\end{aligned}$$

Services¹

$$\begin{aligned}\ln(ER/EM) &= .7847 + .01637 \cdot T \\ &\quad (9.94) \\ R^2 &= .952 \quad d.f. = 6\end{aligned}$$

Exhibit F-1 (cont'd)

WYOMING (cont'd)

Federal Government

$$\ln (ER/EM) = 1.0827 + .01487 \cdot T$$

(4.10)

$$R^2 = .737 \qquad d.f. = 7$$

State and Local Government

$$\ln (ER/EM) = .07475 + .02176 \cdot T$$

(14.26)

$$R^2 = .971 \qquad d.f. = 7$$

1

These equations were calibrated using aggregate trends in average earnings per employee in manufacturing, construction, mining, TCU, Federal Government and State and local government (see explanation in text).

2

Estimated equation for Old West Region.

Average earnings (1967 dollars) per employee in the trade, finance, insurance and real estate sectors, and service sector in Montana, North Dakota, South Dakota and Wyoming either had 1) declining historical trends, or 2) lagged significantly behind the growth in average earnings per employee in the other non-agriculture sectors in these States. It was considered unreasonable to expect these historical trends for these three sectors to continue through 1980 and 1985, especially in view of the anticipated growth. Consequently, average earnings per employee in these sectors were projected to increase at the historical rate of average earnings per employee of the other non-agricultural sectors in each respective State, except in Nebraska where the historical trends appeared to be reasonable and in North Dakota in the financial sector (see above listed equations). In addition, due to large dislocations in the Federal Government sector in North Dakota, it was necessary to use the regional equation in this sector for projecting Federal Government employment in North Dakota.

The foregoing earnings to employment equations were calibrated using State data. However, for purposes of this study, what was required were equations for sub-State areas which would reflect, to some extent at least, the unique characteristics of each sub-State area. Since it was not possible to calibrate equations by sub-State area, the State earnings per employee growth rates (from the equations) were applied to the 1972 base earnings per employee by sector by sub-State area to project average earnings per employee for 1980 and 1985.

5.0 Adjustments to OBERS Earnings Projections

A comprehensive evaluation of the OBERS earnings projections revealed that there were at least three areas (not including probable energy developments), in which adjustments were required in order to obtain reasonable OBERS baseline projections for 1980 and 1985.¹ "Adjusted" OBERS projections of earnings and employment by sector for 1980 and 1985 by sub-State area, by State and for the Region are shown in Tables F-2 through F-49 (see columns 1 and 5).² The adjustments made to the OBERS projections in order to develop these "adjusted" OBERS projections are described below.

5.1 Adjustment for 1970-1974 Growth

As mentioned above, the OBERS projections were largely based upon historical trends and relationships existing prior to 1970. Many areas of the Region experienced extremely rapid growth--as compared to historical trends--between 1970 and 1974. Therefore, it was concluded that adjustments to the OBERS projections by sector and by sub-State area were required (the agriculture sector, and to some degree the manufacturing sector, were excluded since separate adjustments were performed, as discussed in Sections 5.2 and 5.3) in order to more accurately reflect the 1970-1974 economic activity.

¹ As indicated in this section, adjustments were made 1) to take into account recent growth trends in the Region since the OBERS projections were formulated, 2) to the Region's agricultural sector based on recent trends and expectations, and 3) to the manufacturing sector in several States based partly on the results of a questionnaire sent to major employers (i.e., 100 persons or more) in the Region.

² Totals in these tables may not add due to rounding.

Table F-2
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
OLD WEST REGION
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	2,029.9	2,031.0	2,029.9	2,032.1	2,241.2	2,246.4	2,242.9	2,252.6
Mining	268.9	366.2	291.2	404.2	297.7	452.8	348.4	521.4
Construction	963.3	1,050.2	992.8	1,147.2	1,119.3	1,194.0	1,154.6	1,336.3
Manufacturing	1,569.4	1,576.1	1,571.9	158.2	1,953.9	1,962.5	1,957.9	1,972.5
Transportation, Communication, & Utilities	1,069.8	1,114.8	1,087.0	1,142.0	1,217.7	1,298.7	1,253.6	1,389.3
Trade	2,265.7	2,323.0	2,283.8	2,365.7	2,562.2	2,638.4	2,593.6	2,714.9
Finance, Insurance, & Real Estate	670.8	685.3	675.7	696.5	799.4	819.5	808.3	841.7
Services	1,957.1	2,011.8	1,975.2	2,053.8	2,402.1	2,480.3	2,436.0	2,563.4
Federal Government	1,038.7	1,040.0	1,039.3	1,041.3	1,186.5	1,188.4	1,188.4	1,188.7
State & Local Government	1,650.3	1,701.1	1,665.6	1,738.1	1,946.0	2,019.1	1,975.6	2,095.8
Total	13,484.1	13,899.5	13,612.3	14,202.6	15,726.1	16,300.2	15,959.2	16,876.6

Table F-3
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
OLD WEST REGION
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	215.6	215.7	215.6	215.9	215.6	216.2	215.8	216.9
Mining	34.9	42.4	36.6	45.3	36.1	46.9	39.6	51.7
Construction	96.7	103.7	99.1	111.3	101.8	107.5	104.5	118.0
Manufacturing	204.5	205.4	204.8	206.2	226.9	228.0	227.4	229.3
Transportation, Communication, & Utilities	109.9	114.1	111.5	116.7	109.6	116.0	112.5	122.9
Trade	436.1	447.3	439.5	455.6	464.7	478.7	470.3	492.4
Finance, Insurance, & Real Estate	84.3	86.1	84.9	87.6	90.8	93.2	91.9	95.8
Services	379.6	391.0	383.2	399.6	426.4	441.7	432.8	457.2
Federal Government	98.6	98.8	98.7	98.9	101.0	101.1	101.1	101.2
State & Local Government	295.3	304.4	298.0	311.2	315.5	327.7	320.6	340.1
Total	1,955.5	2,008.9	1,971.9	2,048.3	2,088.4	2,157.0	2,116.6	2,225.4

Table F-4
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	349.0	349.0	349.0	349.0	385.4	385.4	385.4	385.4
Mining	64.9	77.7	72.3	86.6	68.1	90.0	82.1	101.8
Construction	150.9	158.4	152.9	178.4	169.8	174.7	172.8	215.1
Manufacturing	230.8	232.1	231.5	233.7	274.4	276.2	275.6	279.6
Transportation, Communication, & Utilities	204.8	212.3	210.0	218.1	226.1	239.0	234.1	264.4
Trade	404.4	411.7	408.2	420.8	455.0	465.0	461.3	484.6
Finance, Insurance, & Real Estate	105.7	107.7	106.7	110.2	124.6	127.6	126.5	133.4
Services	337.0	344.8	341.1	354.5	408.5	420.1	415.9	442.9
Federal Government	178.9	178.9	178.9	178.9	205.8	205.8	205.8	205.8
State & Local Government	308.3	314.5	311.6	322.3	369.1	378.2	374.8	396.0
Total	2,334.7	2,387.2	2,362.1	2,452.5	2,686.8	2,761.9	2,734.3	2,909.1

Table F-5
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS

MONTANA

1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6
Mining	8.4	9.3	8.9	10.0	8.1	9.7	9.1	10.5
Construction	16.0	16.7	16.2	18.3	16.9	17.4	17.2	20.7
Manufacturing	30.8	31.0	30.9	31.2	34.1	34.3	34.3	34.8
Transportation, Communication, & Utilities	21.8	22.5	22.3	23.1	21.7	22.7	22.3	24.6
Trade	74.7	76.1	75.4	77.8	77.7	79.4	78.8	82.8
Finance, Insurance, & Real Estate	13.8	14.1	13.9	14.4	15.0	15.4	15.3	16.1
Services	64.7	66.2	65.5	67.9	72.6	74.5	73.8	78.4
Federal Government	16.6	16.6	16.6	16.6	17.1	17.1	17.1	17.1
State & Local Government	51.3	52.3	51.8	53.7	55.4	56.8	56.3	59.5
Total	332.8	339.4	336.2	347.5	353.3	361.9	358.8	379.0

Table F-6
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA-NORTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	198.4	198.4	198.4	198.4	219.0	219.0	219.0	219.0
Mining	8.6	8.6	8.6	8.6	8.9	8.9	8.9	8.9
Construction	48.1	48.1	48.1	48.1	54.2	54.2	54.2	54.2
Manufacturing	45.5	45.5	45.5	45.5	53.3	53.3	53.3	53.3
Transportation, Communication, & Utilities	63.8	63.8	63.8	63.8	69.9	69.9	69.9	69.9
Trade	128.3	128.3	128.3	128.3	142.5	142.5	142.5	142.5
Finance, Insurance, & Real Estate	40.0	40.0	40.0	40.0	47.0	47.0	47.0	47.0
Services	118.1	118.1	118.1	118.1	142.4	142.4	142.4	142.4
Federal Government	98.3	98.3	98.3	98.3	112.6	112.6	112.6	112.6
State & Local Government	120.0	120.0	120.0	120.0	145.0	145.0	145.0	145.0
Total	869.1	869.1	869.1	869.1	994.8	994.8	994.8	994.8

Table F-7
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA-NORTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
Mining	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Construction	5.1	5.1	5.1	5.1	5.4	5.4	5.4	5.4
Manufacturing	6.4	6.4	6.4	6.4	7.0	7.0	7.0	7.0
Transportation, Communication, & Utilities	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Trade	24.0	24.0	24.0	24.0	24.6	24.0	24.0	24.0
Finance, Insurance, & Real Estate	5.6	5.6	5.6	5.6	6.0	6.0	6.0	6.0
Services	23.0	23.0	23.0	23.0	25.6	25.6	25.6	25.6
Federal Government	9.9	9.9	9.9	9.9	10.2	10.2	10.2	10.2
State & Local Government	20.1	20.1	20.1	20.1	21.9	21.9	21.9	21.9
Total	118.1	118.1	118.1	118.1	124.6	124.6	124.6	124.6

Table F-8

REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA-SOUTHEAST

1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	115.6	115.6	115.6	115.6	127.6	127.6	127.6	127.6
Mining	13.3	26.1	20.7	35.0	14.4	36.3	28.5	48.1
Construction	45.2	52.8	47.2	72.7	50.8	55.7	53.8	96.1
Manufacturing	59.0	60.3	59.6	61.9	69.1	70.8	70.2	74.3
Transportation, Communication, & Utilities	77.8	85.3	82.9	91.1	85.9	98.7	93.9	124.2
Trade	147.2	154.5	151.0	163.6	168.1	178.1	174.4	197.6
Finance, Insurance, & Real Estate	34.4	36.4	35.4	38.9	40.5	43.5	42.4	49.3
Services	119.7	127.6	123.8	137.3	144.6	156.2	152.0	179.0
Federal Government	33.7	33.7	33.7	33.7	38.5	38.5	38.5	38.5
State & Local Government	95.6	101.9	98.9	109.6	113.0	122.1	118.7	139.9
Total	741.5	794.0	768.9	859.3	852.4	927.6	899.9	1,074.7

Table F-9
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA-SOUTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
Mining	1.9	2.9	2.5	3.6	1.9	3.4	2.9	4.3
Construction	5.1	5.8	5.3	7.4	5.4	5.9	5.7	9.2
Manufacturing	8.0	8.2	8.1	8.4	8.7	8.9	8.8	9.4
Transportation, Communication, & Utilities	8.2	8.8	8.6	9.4	8.1	9.1	8.7	11.0
Trade	27.1	28.5	27.8	30.1	28.6	30.3	29.7	33.7
Finance, Insurance, & Real Estate	4.5	4.8	4.6	5.1	4.9	5.3	5.1	6.0
Services	21.9	23.3	22.7	25.1	24.5	26.4	25.7	30.3
Federal Government	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
State & Local Government	16.2	17.2	16.7	18.6	17.3	18.6	18.1	21.4
Total	108.2	114.8	111.7	123.0	114.8	123.4	120.2	140.5

Table F-10
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA-WEST
1980 AND 1985
 (in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	35.0	35.0	35.0	35.0	38.7	38.7	38.7	38.7
Mining	43.0	43.0	43.0	43.0	44.8	44.8	44.8	44.8
Construction	57.5	55.5	55.5	55.5	64.7	64.7	64.7	64.7
Manufacturing	12.3	12.3	12.3	12.3	152.1	152.1	152.1	152.1
Transportation, Communication, & Utilities	63.2	63.2	63.2	63.2	70.4	70.4	70.4	70.4
Trade	128.9	128.9	128.9	128.9	144.4	144.4	144.4	144.4
Finance, Insurance, & Real Estate	31.3	31.3	31.3	31.3	37.1	37.1	37.1	37.1
Services	99.1	99.1	99.1	99.1	121.5	121.5	121.5	121.5
Federal Government	46.8	46.8	46.8	46.8	54.7	54.7	54.7	54.7
State & Local Government	92.7	92.7	92.7	92.7	111.1	111.1	111.1	111.1
Total	724.0	724.0	724.0	724.0	839.5	839.5	839.5	839.5

Table F-11

EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
MONTANA-WEST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Mining	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.0
Construction	5.8	5.8	5.8	5.8	6.2	6.2	6.2	6.2
Manufacturing	16.4	16.4	16.4	16.4	18.4	18.4	18.4	18.4
Transportation, Communication, & Utilities	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Trade	23.6	23.6	23.6	23.6	24.5	24.5	24.5	24.5
Finance, Insurance, & Real Estate	3.8	3.8	3.8	3.8	4.1	4.1	4.1	4.1
Services	19.8	19.8	19.8	19.8	22.5	22.5	22.5	22.5
Federal Government	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
State & Local Government	15.0	15.0	15.0	15.0	16.2	16.2	16.2	16.2
Total	106.5	106.5	106.5	106.5	113.9	113.9	113.9	113.9

Table F-12
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	714.6	714.6	714.6	714.6	789.0	789.0	789.0	789.0
Mining	12.6	12.6	12.6	12.6	12.8	12.8	12.8	12.8
Construction	371.2	386.8	380.3	398.9	432.0	442.5	432.4	459.7
Manufacturing	908.9	910.0	909.5	910.7	1,143.8	1,144.7	1,144.0	1,145.8
Transportation, Communication, & Utilities	466.7	472.4	468.0	474.8	541.8	549.4	545.9	553.8
Trade	943.3	949.4	946.3	953.7	1,077.8	1,082.9	1,079.1	1,089.0
Finance, Insurance, & Real Estate	352.4	354.1	353.2	355.0	423.4	424.6	423.7	426.8
Services	870.8	876.8	873.8	880.5	1,088.7	1,093.8	1,090.1	1,100.4
Federal Government	319.3	319.3	319.3	319.3	367.9	367.9	367.9	367.9
State & Local Government	640.1	644.0	642.0	647.0	746.7	753.0	748.9	765.3
Total	5,600.0	5,640.3	5,619.8	5,667.3	6,624.0	6,660.7	6,633.9	6,710.4

Table F-13
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	75.9	75.9	75.9	75.9	75.9	75.9	75.9	75.9
Mining	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9
Construction	34.1	35.3	34.8	36.2	34.9	35.7	35.0	36.9
Manufacturing	113.5	113.7	113.6	113.8	125.6	125.7	125.6	125.8
Transportation, Communication, & Utilities	44.3	44.8	44.5	45.0	44.0	44.5	44.3	44.9
Trade	18.4	182.6	182.0	183.4	200.5	201.5	200.8	202.6
Finance, Insurance, & Real Estate	42.1	42.3	42.2	42.4	45.3	45.5	45.4	45.7
Services	155.9	157.0	156.4	157.7	176.6	177.5	176.9	178.6
Federal Government	28.0	28.0	28.0	28.0	27.9	27.9	27.9	27.9
State & Local Government	105.3	106.0	105.7	106.5	108.4	109.3	108.7	110.9
Total	782.7	787.6	785.1	791.1	841.2	845.5	842.3	851.1

Table F-14

REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-CENTRAL
1980 AND 1985

(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	253.1	253.1	253.1	253.1	279.5	279.5	279.5	279.5
Mining	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5
Construction	47.9	55.5	52.4	66.0	55.1	63.6	55.2	68.7
Manufacturing	153.6	154.1	153.9	154.7	195.8	196.4	195.9	196.8
Transportation, Communication, & Utilities	74.1	76.9	74.7	79.1	84.0	89.3	86.0	91.9
Trade	172.1	175.1	173.6	178.8	192.5	196.4	193.1	198.6
Finance, Insurance, & Real Estate	34.9	35.5	35.2	36.3	41.9	42.7	42.0	43.5
Services	127.6	130.1	128.8	133.3	156.1	159.7	156.7	161.8
Federal Government	32.2	32.2	32.2	32.2	37.0	37.0	37.0	37.0
State & Local Government	113.1	115.3	114.2	118.1	130.8	133.9	131.3	135.6
Total	1,013.1	1,032.4	1,022.6	1,056.1	1,177.3	1,203.1	1,181.3	1,217.8

Table F-15
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-CENTRAL
1980 AND 1985
(in thousands)

Industrial Sector	1980					1985				
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	
Agriculture	24.9	24.9	24.9	24.9		24.9	24.9	24.9	24.9	
Mining	0.9	0.9	0.9	0.9		0.9	0.9	0.9	0.9	
Construction	5.8	6.4	6.1	7.2		5.9	6.5	5.9	6.8	
Manufacturing	22.4	22.5	22.4	22.6		25.1	25.2	25.1	25.2	
Transportation, Communication, & Utilities	8.1	8.3	8.1	8.5		7.8	8.2	8.0	8.4	
Trade	35.4	36.1	35.7	36.8		38.4	39.2	38.5	39.6	
Finance, Insurance, & Real Estate	4.6	4.6	4.6	4.7		4.9	5.0	4.9	5.1	
Services	26.2	26.7	26.5	27.4		29.2	29.8	29.3	30.2	
Federal Government	3.2	3.2	3.2	3.2		3.2	3.2	3.2	3.2	
State & Local Government	20.8	21.2	21.0	21.7		21.2	21.7	21.3	22.0	
Total	152.3	154.8	153.5	157.9		161.4	164.5	161.9	166.3	

Table F-16
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
 NEBRASKA-EAST (OMAHA)
 1980 AND 1985
 (in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	77.2	77.2	77.2	77.2	85.2	85.2	85.2	85.2
Mining	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2
Construction	213.2	221.3	217.9	222.9	250.8	252.8	251.1	264.8
Manufacturing	477.4	478.0	477.7	478.1	595.7	595.9	595.8	596.7
Transportation, Communication, & Utilities	255.9	258.8	256.6	259.0	300.3	302.6	302.4	304.3
Trade	445.1	448.2	446.7	448.8	513.7	514.8	514.3	518.7
Finance, Insurance, & Real Estate	207.5	208.7	208.1	208.9	249.6	250.0	249.8	251.5
Services	460.6	464.0	462.3	464.6	585.4	586.8	586.2	591.4
Federal Government	211.8	211.8	211.8	211.8	244.3	244.3	244.3	244.3
State & Local Government	203.6	205.2	204.4	205.5	243.4	246.7	245.1	257.2
Total	2,556.4	2,577.3	2,566.6	2,580.7	3,072.5	3,083.4	3,078.4	3,118.4

Table F-17
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-EAST (OMAHA)
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
Mining	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Construction	17.0	17.6	17.3	17.7	17.6	17.8	17.7	18.6
Manufacturing	51.0	51.1	51.1	51.1	55.9	55.9	55.9	56.0
Transportation, Communication, & Utilities	21.7	21.9	21.7	21.9	21.8	21.9	21.9	22.1
Trade	77.2	77.8	77.5	77.8	86.3	86.5	86.4	87.1
Finance, Insurance, & Real Estate	23.5	23.6	23.6	23.6	25.3	25.4	25.3	25.5
Services	72.6	73.1	72.8	73.2	83.8	84.0	83.9	84.6
Federal Government	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1
State & Local Government	29.7	30.0	29.9	30.0	31.4	31.8	31.6	33.2
Total	319.8	322.1	320.9	322.5	349.2	350.3	349.8	354.1

Table F-18
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-NORTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980					1985				
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	
Agriculture	178.8	178.8	178.8	178.8		197.4	197.4	197.4	197.4	
Mining	1.8	1.8	1.8	1.8		1.8	1.8	1.8	1.8	
Construction	23.9	23.9	23.9	23.9		27.2	27.2	27.2	27.2	
Manufacturing	94.2	94.2	94.2	94.2		116.6	116.6	116.6	116.6	
Transportation, Communication, & Utilities	27.8	27.8	27.8	27.8		31.5	31.5	31.5	31.5	
Trade	102.0	102.0	102.0	102.0		116.3	116.3	116.3	116.3	
Finance, Insurance, & Real Estate	21.8	21.8	21.8	21.8		25.7	25.7	25.7	25.7	
Services	75.2	75.2	75.2	75.2		90.5	90.5	90.5	90.5	
Federal Government	19.5	19.5	19.5	19.5		22.2	22.2	22.2	22.2	
State & Local Government	74.3	74.3	74.3	74.3		83.5	83.5	83.5	83.5	
Total	619.2	619.2	619.2	619.2		712.7	712.7	712.7	712.7	

Table F-19
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-NORTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Mining	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Construction	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Manufacturing	15.6	15.6	15.6	15.6	16.9	16.9	16.9	16.9
Transportation, Communication, & Utilities	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.4
Trade	22.0	22.0	22.0	22.0	24.3	24.3	24.3	24.3
Finance, Insurance, & Real Estate	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1
Services	16.7	16.7	16.7	16.7	18.2	18.2	18.2	18.2
Federal Government	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4
State & Local Government	13.6	13.6	13.6	13.6	13.5	13.5	13.5	13.5
Total	100.0	100.0	100.0	100.0	105.1	105.1	105.1	105.1

Table F-20
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-SOUTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	136.2	136.2	136.2	136.2	150.4	150.4	150.4	150.4
Mining	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Construction	66.5	66.5	66.5	66.5	77.6	77.6	77.6	77.6
Manufacturing	155.1	155.1	155.1	155.1	200.5	200.5	200.5	200.5
Transportation, Communication, & Utilities	75.8	75.8	75.8	75.8	88.1	88.1	88.1	88.1
Trade	177.8	177.8	177.8	177.8	205.3	205.3	205.3	205.3
Finance, Insurance, & Real Estate	77.2	77.2	77.2	77.2	93.6	93.6	93.6	93.6
Services	172.7	172.7	172.7	172.7	215.5	215.5	215.5	215.5
Federal Government	46.7	46.7	46.7	46.7	54.1	54.1	54.1	54.1
State & Local Government	221.3	221.3	221.3	221.3	252.5	252.5	252.5	252.5
Total	1,130.3	1,130.3	1,130.3	1,130.3	1,337.9	1,337.9	1,337.9	1,337.9

Table F-21
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-SOUTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Mining	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Construction	6.3	6.3	6.3	6.3	6.5	6.5	6.5	6.5
Manufacturing	20.1	20.1	20.1	20.1	22.9	22.9	22.9	22.9
Transportation, Communication, & Utilities	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.7
Trade	37.6	37.6	37.6	37.6	42.1	42.1	42.1	42.1
Finance, Insurance, & Real Estate	9.8	9.8	9.8	9.8	10.6	10.6	10.6	10.6
Services	33.6	33.6	33.6	33.6	38.1	38.1	38.1	38.1
Federal Government	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
State & Local Government	36.4	36.4	36.4	36.4	36.6	36.6	36.6	36.6
Total	169.7	169.7	169.7	169.7	182.6	182.6	182.6	182.6

Table F-22
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA-WEST (PANHANDLE)
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	69.3	69.3	69.3	69.3	76.5	76.5	76.5	76.5
Mining	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Construction	19.5	19.5	19.5	19.5	21.8	21.8	21.8	21.8
Manufacturing	28.7	28.7	28.7	28.7	35.2	35.2	35.2	35.2
Transportation, Communication, & Utilities	33.1	33.1	33.1	33.1	38.0	38.0	38.0	38.0
Trade	46.3	46.3	46.3	46.3	50.2	50.2	50.2	50.2
Finance, Insurance, & Real Estate	10.9	10.9	10.9	10.9	12.6	12.6	12.6	12.6
Services	34.8	34.8	34.8	34.8	41.2	41.2	41.2	41.2
Federal Government	9.1	9.1	9.1	9.1	10.2	10.2	10.2	10.2
State & Local Government	27.8	27.8	27.8	27.8	36.5	36.5	36.5	36.5
Total	281.0	281.0	281.0	281.0	323.6	323.6	323.6	323.6

Table F-23
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NEBRASKA WEST (PANHANDLE)
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Mining	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Construction	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Manufacturing	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
Transportation, Communication, & Utilities	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.3
Trade	9.1	9.1	9.1	9.1	9.6	9.6	9.6	9.6
Finance, Insurance, & Real Estate	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Services	6.9	6.9	6.9	6.9	7.4	7.4	7.4	7.4
Federal Government	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
State & Local Government	4.9	4.9	4.9	4.9	5.6	5.6	5.6	5.6
Total	40.9	40.9	40.9	40.9	42.8	42.8	42.8	42.8

Table F-24
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA
1980 AND 1985
(in millions of constant 1967 dollars)

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Industrial Sector								
Agriculture	394.6	395.7	394.6	396.8	435.6	440.5	437.3	443.5
Mining	14.8	16.6	14.8	18.4	14.3	28.7	22.8	44.2
Construction	133.2	170.0	145.5	199.8	149.8	178.4	166.5	209.3
Manufacturing	136.0	138.0	136.1	139.5	164.6	167.5	166.0	170.0
Transportation, Communication, & Utilities	133.9	145.1	139.3	151.8	148.7	178.9	160.3	202.1
Trade	352.4	366.4	357.4	377.2	389.7	410.4	400.0	429.9
Finance, Insurance, & Real Estate	81.6	84.9	82.8	87.4	96.1	101.3	98.7	105.8
Services	267.0	280.7	271.8	291.2	321.6	343.6	332.5	363.3
Federal Government	216.4	217.3	216.4	217.6	243.6	244.5	244.5	244.6
State & Local Government	229.5	240.7	233.4	249.4	270.9	287.9	279.4	303.0
Total	1,959.5	2,055.2	1,993.1	2,129.1	2,235.0	2,381.8	2,307.9	2,514.4

Table F-25
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	41.0	41.1	41.0	41.3	41.0	41.5	41.2	41.9
Mining	2.4	2.5	2.4	2.6	2.3	3.3	2.9	4.4
Construction	13.9	16.8	14.9	19.1	14.2	16.4	15.5	18.6
Manufacturing	19.2	19.5	19.3	19.7	20.8	21.2	21.0	21.5
Transportation, Communication, & Utilities	14.8	15.9	15.3	16.6	14.7	17.0	15.6	18.8
Trade	66.7	69.4	67.7	71.5	68.9	72.6	70.7	76.0
Finance, Insurance, & Real Estate	10.4	10.8	10.5	11.2	10.9	11.6	11.2	12.1
Services	56.6	59.5	57.6	61.7	63.6	67.9	65.7	71.8
Federal Government	22.5	22.6	22.6	22.6	22.9	23.0	23.0	23.0
State & Local Government	51.5	54.1	52.4	56.1	57.9	61.7	59.8	65.0
Total	299.0	312.2	303.6	322.4	317.1	336.2	326.6	353.0

Table F-26
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-NORTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980					1985				
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	
Agriculture	80.6	81.0	80.6	81.5		89.0	90.5	89.6	91.4	
Mining	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	
Construction	39.8	41.5	41.0	42.2		45.1	46.8	46.5	49.6	
Manufacturing	39.3	39.4	39.3	39.5		48.0	48.2	48.1	48.2	
Transportation, Communication, & Utilities	25.9	26.4	26.0	26.2		28.8	29.1	29.0	29.2	
Trade	72.1	72.7	72.4	73.0		79.8	80.7	80.4	81.0	
Finance, Insurance, & Real Estate	16.6	16.7	16.7	16.8		19.5	19.7	19.6	19.7	
Services	51.2	51.7	51.5	52.0		62.3	63.1	62.8	63.3	
Federal Government	76.1	76.4	76.3	76.4		85.9	86.2	86.2	86.2	
State & Local Government	56.2	56.8	56.6	57.1		66.6	67.5	67.2	67.8	
Total	458.3	462.7	460.9	465.1		525.4	532.2	529.8	536.5	

Table F-27
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-NORTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	9.4	9.4	9.5	9.5	9.4	9.6	9.5	9.7
Mining	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Construction	3.8	4.0	3.9	4.0	3.9	4.0	4.1	4.1
Manufacturing	5.4	5.5	5.5	5.5	6.0	6.0	6.0	6.0
Transportation, Communication, & Utilities	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Trade	13.6	13.7	13.7	13.8	14.1	14.2	14.2	14.3
Finance, Insurance, & Real Estate	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0
Services	11.0	11.1	11.1	11.2	12.5	12.7	12.6	12.7
Federal Government	8.5	8.5	8.5	8.5	8.6	8.7	8.7	8.7
State & Local Government	12.1	12.2	12.2	12.3	13.5	13.9	13.8	13.9
Total	68.8	69.4	69.1	69.7	73.0	74.0	73.7	74.3

Table F-28
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-NORTHWEST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	55.8	56.2	55.8	56.8	61.6	64.1	62.4	65.5
Mining	7.0	7.0	7.0	7.0	6.7	6.7	6.7	12.4
Construction	20.1	22.4	21.2	22.6	22.3	24.5	24.2	25.5
Manufacturing	20.1	20.7	20.2	20.2	23.9	24.1	24.0	24.3
Transportation, Communication, & Utilities	26.0	26.4	26.2	26.5	27.8	28.4	28.2	29.4
Trade	57.0	57.9	57.4	58.1	61.4	62.8	62.3	65.1
Finance, Insurance, & Real Estate	11.3	11.5	11.4	11.5	13.1	13.4	13.3	13.9
Services	47.8	48.6	48.1	48.8	56.4	57.8	57.2	60.1
Federal Government	65.9	66.2	66.0	66.3	73.8	74.1	74.1	74.2
State & Local Government	33.2	33.8	33.4	33.9	38.3	39.3	38.9	41.0
Total	344.2	350.1	346.6	351.7	385.1	395.2	391.3	411.4

Table F-29
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-NORTHWEST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	8.5	8.6	8.6	8.7	8.6	8.9	8.7	9.1
Mining	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.6
Construction	2.2	2.3	2.2	2.4	2.2	2.3	2.3	2.4
Manufacturing	3.1	3.1	3.1	3.1	3.2	3.3	3.3	3.3
Transportation, Communication, & Utilities	2.8	2.9	2.8	2.9	2.7	2.8	2.8	2.9
Trade	11.6	11.8	11.7	11.8	11.7	11.9	11.8	12.4
Finance, Insurance, & Real Estate	1.7	1.8	1.7	1.8	1.8	1.8	1.8	1.9
Services	10.3	10.5	10.4	10.5	11.3	11.6	11.5	12.1
Federal Government	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6
State & Local Government	8.2	8.4	8.3	8.4	9.0	9.3	9.2	9.7
Total	57.2	58.0	57.5	58.3	59.3	60.8	60.1	63.0

Table F-30

REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-SOUTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	145.7	145.7	145.7	145.7	160.8	161.3	160.8	162.0
Mining	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Construction	41.9	42.2	42.1	42.7	45.9	47.5	47.3	47.7
Manufacturing	43.0	43.1	43.1	43.1	52.4	52.5	52.5	52.5
Transportation, Communication, & Utilities	46.2	46.4	46.4	46.5	51.6	51.9	51.8	52.0
Trade	135.3	135.7	135.7	135.9	147.6	148.4	148.2	148.7
Finance, Insurance, & Real Estate	36.5	36.7	36.6	36.7	43.1	43.3	43.3	43.5
Services	103.2	103.6	103.6	103.8	124.1	125.0	124.7	125.3
Federal Government	39.1	39.3	39.3	39.4	44.2	44.5	44.5	44.5
State & Local Government	85.3	85.7	85.6	85.8	101.7	102.3	102.1	102.5
Total	675.4	678.6	678.3	679.9	771.6	776.9	775.4	779.1

Table F-31
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-SOUTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	12.5	12.5	12.5	12.5	12.5	12.6	12.5	12.6
Mining	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Construction	4.3	4.4	4.4	4.4	4.4	4.5	4.5	4.5
Manufacturing	5.9	5.9	5.9	5.9	6.4	6.4	6.4	6.4
Transportation, Communication, & Utilities	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Trade	24.4	24.5	24.5	24.6	24.9	25.0	25.0	25.1
Finance, Insurance, & Real Estate	4.4	4.4	4.4	4.4	4.6	4.6	4.6	4.6
Services	21.6	21.7	21.6	21.7	24.2	24.4	24.3	24.4
Federal Government	3.5	3.6	3.5	3.6	3.6	3.6	3.6	3.6
State & Local Government	18.7	18.8	18.8	18.8	21.3	21.4	21.4	21.5
Total	100.2	100.7	100.6	100.8	106.8	107.5	107.3	107.8

N.S. - Not Significant

Table F-32
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-SOUTHWEST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980					1985				
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	
Agriculture	112.4	112.8	112.4	112.8		124.1	124.5	124.5	124.6	
Mining	7.1	8.9	7.1	10.7		6.9	21.3	15.3	31.1	
Construction	32.3	63.9	41.1	92.4		36.6	59.6	48.4	86.9	
Manufacturing	33.6	35.3	34.1	36.7		40.4	42.8	41.5	44.9	
Transportation, Communication, & Utilities	35.8	46.2	40.8	52.6		40.6	69.5	51.3	91.4	
Trade	88.1	100.1	91.9	110.2		100.9	118.5	109.2	134.2	
Finance, Insurance, & Real Estate	17.3	20.0	18.1	22.4		20.5	24.9	22.5	28.7	
Services	64.9	76.7	68.6	86.6		78.8	97.8	87.7	114.5	
Federal Government	35.3	35.3	35.3	35.5		39.8	39.8	39.8	39.8	
State & Local Government	54.8	64.5	57.8	72.6		64.3	78.9	71.1	91.7	
Total	481.6	563.8	507.3	632.5		552.8	677.5	611.3	787.7	

Table F-33
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
NORTH DAKOTA-SOUTHWEST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Mining	1.0	1.2	1.0	1.3	1.0	2.0	1.6	2.7
Construction	3.6	6.1	4.3	8.4	3.8	5.5	4.7	7.6
Manufacturing	4.8	5.1	4.9	5.3	5.2	5.5	5.4	5.8
Transportation, Communication, & Utilities	4.2	5.2	4.6	5.8	4.2	6.4	5.1	8.1
Trade	17.0	19.4	17.8	21.3	18.2	21.4	19.7	24.2
Finance, Insurance, & Real Estate	2.4	2.8	2.5	3.1	2.5	3.1	2.8	3.6
Services	13.7	16.2	14.5	18.3	15.5	19.2	17.3	22.5
Federal Government	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
State & Local Government	12.5	14.7	13.2	16.6	14.0	17.2	15.5	20.0
Total	72.8	84.1	76.3	93.6	78.0	93.9	85.5	108

Table F-34
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	454.0	454.0	454.0	454.0	501.3	501.7	501.3	504.8
Mining	20.0	20.0	20.0	20.0	24.3	24.3	24.3	24.3
Construction	109.7	112.4	109.8	126.5	134.9	140.6	139.8	154.3
Manufacturing	213.5	213.7	213.6	214.5	275.2	275.6	275.5	276.5
Transportation, Communication, & Utilities	134.5	136.0	135.7	137.5	153.5	155.6	155.5	160.0
Trade	372.0	373.3	372.4	377.9	417.5	420.0	419.7	426.0
Finance, Insurance, & Real Estate	86.2	86.5	86.3	87.7	102.1	102.7	102.6	104.3
Services	313.0	314.2	313.4	318.2	377.9	380.3	380.0	385.9
Federal Government	208.7	209.2	208.7	210.1	236.5	237.5	237.5	237.6
State & Local Government	288.2	289.3	288.5	292.9	341.0	343.1	342.8	348.1
Total	2,199.8	2,208.7	2,202.4	2,239.3	2,564.0	2,581.3	2,579.0	2,621.7

Table F-35

EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA
1980 AND 1985
(in thousands)

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Industrial Sector	49.8	49.8	49.8	49.8	49.8	49.8	49.8	50.2
Agriculture	3.8	3.8	3.8	3.8	4.3	4.3	4.3	4.3
Mining	13.8	14.1	13.9	15.2	16.1	16.6	16.5	17.6
Construction	30.5	30.5	30.5	30.6	34.8	34.8	34.8	35.0
Manufacturing								
Transportation, Communication, & Utilities	15.7	15.9	15.8	16.8	15.7	15.8	15.8	16.2
Trade	74.3	74.6	74.4	75.5	76.4	76.8	76.8	78.0
Finance, Insurance, & Real Estate	12.4	12.5	12.5	12.7	13.5	13.6	13.6	13.8
Services	66.3	66.6	66.4	67.5	73.3	73.8	73.7	74.9
Federal Government	20.5	20.6	20.5	20.7	21.3	21.4	21.4	21.4
State & Local Government	57.6	57.8	57.6	58.6	62.3	62.8	62.7	63.7
Total	344.8	346.0	345.1	350.3	367.5	369.7	369.4	375.1

Table F-36
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA-NORTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	159.3	159.3	159.3	159.3	175.9	176.3	175.9	179.4
Mining	1.1	1.1	1.1	1.1	1.3	1.3	1.3	1.3
Construction	36.9	39.6	37.0	51.2	41.6	47.2	46.5	61.0
Manufacturing	60.6	60.8	60.6	61.4	72.8	73.2	73.2	74.2
Transportation, Communication, & Utilities	34.1	35.6	35.3	36.8	38.5	40.5	40.4	44.9
Trade	112.1	113.4	112.5	117.3	124.3	126.8	126.5	132.8
Finance, Insurance, & Real Estate	24.9	25.2	25.0	26.2	29.2	29.9	29.8	31.5
Services	83.4	84.6	83.8	87.9	100.1	102.4	102.1	108.0
Federal Government	37.9	38.3	37.9	38.9	42.3	43.2	43.2	43.4
State & Local Government	88.7	89.8	89.0	92.9	103.7	105.8	105.6	110.8
Total	639.0	647.9	641.5	672.8	729.6	751.8	744.5	787.3

Table F-37

EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA-NORTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	20.0	20.0	20.1	20.1	20.0	20.1	20.0	20.4
Mining	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Construction	4.9	5.2	5.0	6.1	5.3	5.7	5.6	6.7
Manufacturing	9.4	9.4	9.4	9.5	10.0	10.1	10.1	10.2
Transportation, Communication, & Utilities	4.3	4.4	4.4	4.6	4.2	4.4	4.4	4.8
Trade	23.1	23.4	23.2	24.2	23.5	24.0	23.9	25.1
Finance, Insurance, & Real Estate	3.8	3.9	3.8	4.0	4.1	4.2	4.2	4.4
Services	18.7	18.9	18.8	19.7	20.5	21.0	20.9	22.2
Federal Government	3.4	3.4	3.4	3.5	3.4	3.5	3.5	3.5
State & Local Government	18.9	19.1	18.9	19.8	20.2	20.6	20.6	21.6
Total	106.9	108.1	107.2	111.7	111.7	114.0	113.7	119.3

Table F-38
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA-SOUTHEAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	157.0	157.0	157.0	157.0	173.3	173.3	173.3	173.3
Mining	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Construction	25.1	25.1	25.1	25.1	31.7	31.7	31.7	31.7
Manufacturing	95.8	95.8	95.8	95.8	117.9	117.9	117.9	117.9
Transportation, Communication, & Utilities	50.9	50.9	50.9	50.9	58.9	58.9	58.9	58.9
Trade	150.5	150.5	150.5	150.5	171.9	171.9	171.9	171.9
Finance, Insurance, & Real Estate	37.0	37.0	37.0	37.0	44.7	44.7	44.7	44.7
Services	133.5	133.5	133.5	133.5	164.3	164.3	164.3	164.3
Federal Government	32.5	32.5	32.5	32.5	36.8	36.8	36.8	36.8
State & Local Government	98.9	98.9	98.9	98.9	119.4	119.4	119.4	119.4
Total	782.5	782.5	782.5	782.5	920.0	920.0	920.0	920.0

Table F-39
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA-SOUTHEAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
Mining	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Construction	3.1	3.1	3.1	3.1	3.8	3.8	3.8	3.8
Manufacturing	13.0	13.0	13.0	13.0	14.2	14.2	14.2	14.2
Transportation, Communication, & Utilities	5.7	5.7	5.7	5.7	5.8	5.8	5.8	5.8
Trade	29.1	29.1	29.1	29.1	30.4	30.4	30.4	30.4
Finance, Insurance, & Real Estate	4.9	4.9	4.9	4.9	5.4	5.4	5.4	5.4
Services	27.2	27.2	27.2	27.2	30.6	30.6	30.6	30.6
Federal Government	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9
State & Local Government	19.3	19.3	19.3	19.3	21.3	21.3	21.3	21.3
Total	122.5	122.5	122.5	122.5	131.8	131.8	131.8	131.8

Table F-40
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA-WEST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	137.8	137.8	137.8	137.8	152.0	152.0	152.0	152.0
Mining	17.8	17.8	17.8	17.8	21.7	21.7	21.7	21.7
Construction	47.7	47.7	47.7	50.2	61.7	61.7	61.7	61.7
Manufacturing	57.1	57.1	57.1	57.2	84.5	84.5	84.5	84.5
Transportation, Communication, & Utilities	49.5	49.5	49.5	49.8	56.2	56.2	56.2	56.2
Trade	109.4	109.4	109.4	110.1	121.3	121.3	121.3	121.3
Finance, Insurance, & Real Estate	24.3	24.3	24.3	24.6	28.1	28.1	28.1	28.1
Services	96.1	96.1	96.1	96.8	113.6	113.6	113.6	113.6
Federal Government	138.3	138.3	138.3	138.7	157.7	157.7	157.7	157.7
State & Local Government	100.6	100.6	100.6	101.1	117.9	117.9	117.9	117.9
Total	778.4	778.4	778.4	784.0	914.5	914.5	914.5	914.5

Table F-41
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
SOUTH DAKOTA-WEST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Mining	3.1	3.1	3.1	3.1	3.6	3.6	3.6	3.6
Construction	5.8	5.8	5.8	6.0	7.1	7.1	7.1	7.1
Manufacturing	8.0	8.0	8.0	8.1	10.6	10.6	10.6	10.6
Transportation, Communication, & Utilities	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Trade	22.1	22.1	22.1	22.3	22.5	22.5	22.5	22.5
Finance, Insurance, & Real Estate	3.7	3.7	3.7	3.8	4.0	4.0	4.0	4.0
Services	20.5	20.7	20.7	20.6	22.2	22.2	22.2	22.2
Federal Government	14.4	14.4	14.4	14.4	15.0	15.0	15.0	15.0
State & Local Government	19.4	19.4	19.4	19.5	20.8	20.8	20.8	20.8
Total	115.4	115.4	115.4	116.1	123.9	123.9	123.9	123.9

Table F-42
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	117.7	117.7	117.7	117.7	129.9	129.9	129.9	129.9
Mining	156.5	239.2	171.4	266.5	178.3	297.0	206.5	338.3
Construction	198.4	222.5	204.4	243.6	232.9	257.8	243.0	297.0
Manufacturing	80.2	82.3	80.6	83.3	95.9	98.6	96.7	100.5
Transportation, Communication, & Utilities	129.9	149.1	134.0	159.8	147.6	175.8	157.8	209.0
Trade	193.6	222.0	199.5	236.2	222.1	259.9	233.4	286.4
Finance, Insurance, & Real Estate	44.9	52.0	46.6	56.1	53.3	63.3	56.8	71.3
Services	169.7	195.3	175.2	209.3	205.3	242.5	217.6	271.0
Federal Government	115.4	115.4	115.4	115.4	132.7	132.7	132.7	132.7
State & Local Government	184.3	212.6	190.1	226.4	218.4	256.9	229.6	283.4
Total	1,390.1	1,608.1	1,435.0	1,714.4	1,616.4	1,914.5	1,704.1	2,120.6

Table F-43
 EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
 WYOMING
 1980 AND 1985
 (in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Mining	18.4	24.7	19.5	26.8	19.3	27.7	21.3	30.5
Construction	18.8	20.8	19.3	22.5	19.5	21.4	20.3	24.3
Manufacturing	10.4	10.7	10.4	10.8	11.6	11.9	11.7	12.2
Transportation, Communication, & Utilities	13.3	15.1	13.7	16.1	13.6	16.0	14.5	18.5
Trade	38.9	44.6	40.0	47.4	41.2	48.3	43.3	53.1
Finance, Insurance, & Real Estate	5.5	6.4	5.7	6.9	6.1	7.2	6.5	8.1
Services	36.1	41.8	37.3	44.8	40.4	48.0	42.8	53.6
Federal Government	11.0	11.0	11.0	11.0	11.7	11.7	11.7	11.7
State & Local Government	29.6	34.2	30.5	36.4	31.5	37.1	33.1	40.9
Total	196.2	223.7	201.9	237.0	209.3	243.7	219.4	267.3

Table F-44
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING-EAST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	71.5	71.5	71.5	71.5	79.0	79.0	79.0	79.0
Mining	110.8	159.1	125.7	186.4	118.9	187.4	147.0	226.7
Construction	133.3	153.2	139.3	174.2	150.9	170.0	161.0	209.7
Manufacturing	59.5	61.0	60.0	62.1	71.5	73.4	72.4	75.3
Transportation, Communication, & Utilities	96.1	109.3	100.2	119.0	106.5	127.0	116.7	157.6
Trade	143.5	163.0	149.4	176.9	159.2	184.4	170.5	209.9
Finance, Insurance, & Real Estate	36.6	42.2	38.3	46.3	43.3	51.0	46.8	58.9
Services	122.4	141.9	128.4	155.8	148.8	176.2	161.1	204.0
Federal Government	94.5	94.5	94.5	94.5	108.0	108.0	108.0	108.0
State & Local Government	140.1	159.1	145.9	172.7	163.6	188.7	174.9	214.2
Total	1,008.4	1,155.1	1,053.3	1,259.4	1,149.6	1,345.1	1,237.3	1,543.2

Table F-45
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING-EAST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6
Mining	13.2	16.9	14.3	19.0	13.2	18.0	15.1	20.7
Construction	12.5	14.1	12.9	15.7	12.4	13.9	13.2	16.7
Manufacturing	7.4	7.6	7.5	7.7	8.3	8.5	8.4	8.8
Transportation, Communication, & Utilities	9.7	10.9	10.1	11.8	9.6	11.4	10.5	13.7
Trade	28.0	31.8	29.1	34.5	28.6	33.1	30.6	37.7
Finance, Insurance, & Real Estate	4.5	5.2	4.7	5.7	4.9	5.8	5.3	6.7
Services	25.9	30.0	27.1	32.9	29.0	34.3	31.4	39.7
Federal Government	9.2	9.2	9.2	9.2	9.7	9.7	9.7	9.7
State & Local Government	22.2	25.3	23.2	27.4	23.3	26.9	24.9	30.5
Total	142.0	160.4	147.6	173.4	148.6	171.1	158.7	193.7

Table F-46
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING-NORTHWEST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	25.9	25.9	25.9	25.9	28.6	28.6	28.6	28.6
Mining	10.4	10.4	10.4	10.4	10.5	10.5	10.5	10.5
Construction	12.9	12.9	12.9	12.9	17.5	17.5	17.5	17.5
Manufacturing	15.0	15.0	15.0	15.0	17.4	17.4	17.4	17.4
Transportation, Communication, & Utilities	10.2	10.2	10.2	10.2	12.6	12.6	12.6	12.6
Trade	22.8	22.8	22.8	22.8	29.2	29.2	29.2	29.2
Finance, Insurance, & Real Estate	4.5	4.5	4.5	4.5	5.4	5.4	5.4	5.4
Services	32.6	32.6	32.6	32.6	38.8	38.8	38.8	38.8
Federal Government	10.0	10.0	10.0	10.0	12.3	12.3	12.3	12.3
State & Local Government	22.6	22.6	22.6	22.6	28.1	28.1	28.1	28.1
Total	166.9	166.9	166.9	166.9	200.3	200.3	200.3	200.3

Table F-47
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING-NORTHWEST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Mining	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3
Construction	1.5	1.5	1.5	1.5	1.9	1.9	1.9	1.9
Manufacturing	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
Transportation, Communication, & Utilities	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3
Trade	5.0	5.0	5.0	5.0	5.8	5.8	5.8	5.8
Finance, Insurance, & Real Estate	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Services	6.6	6.6	6.6	6.6	7.3	7.3	7.3	7.3
Federal Government	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2
State & Local Government	3.7	3.7	3.7	3.7	4.1	4.1	4.1	4.1
Total	26.0	26.0	26.0	26.0	28.7	28.7	28.7	28.7

Table F-48
REAL EARNINGS BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING-SOUTHWEST
1980 AND 1985
(in millions of constant 1967 dollars)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	20.2	20.2	20.2	20.2	22.3	22.3	22.3	22.3
Mining	35.3	69.7	35.3	69.7	48.9	99.1	48.9	101.0
Construction	52.2	56.4	52.2	56.5	64.5	70.3	64.5	70.7
Manufacturing	5.7	6.3	5.7	6.2	7.0	7.8	7.0	7.8
Transportation, Communication, & Utilities	23.5	29.5	23.5	30.6	28.5	36.3	28.5	38.8
Trade	27.3	36.2	27.3	36.4	33.8	46.3	33.8	47.3
Finance, Insurance, & Real Estate	3.8	5.3	3.8	5.3	4.6	6.9	4.6	7.1
Services	14.3	20.8	14.3	21.0	17.7	27.5	17.7	28.3
Federal Government	10.9	10.9	10.9	10.9	12.5	12.5	12.5	12.5
State & Local Government	21.6	30.8	21.6	31.1	26.7	40.1	26.7	41.2
Total	214.7	286.1	214.7	288.0	266.5	369.1	266.5	377.1

Table F-49
EMPLOYMENT BY INDUSTRIAL SECTOR PROJECTIONS
WYOMING-SOUTHWEST
1980 AND 1985
(in thousands)

Industrial Sector	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Agriculture	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Mining	3.7	6.4	3.7	6.4	4.8	8.3	4.8	8.5
Construction	4.8	5.2	4.8	5.2	5.2	5.7	5.2	5.7
Manufacturing	0.9	1.0	0.9	1.0	1.0	1.2	1.0	1.2
Transportation, Communication, & Utilities	2.4	3.0	2.4	3.0	2.6	3.3	2.6	3.5
Trade	5.9	7.9	5.9	7.9	6.8	9.3	6.8	9.5
Finance, Insurance, & Real Estate	0.5	0.7	0.5	0.7	0.6	0.8	0.6	0.8
Services	3.5	5.2	3.5	5.3	4.1	6.4	4.1	6.6
Federal Government	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
State & Local Government	3.7	5.2	3.7	5.3	4.1	6.1	4.1	6.3
Total	28.2	37.3	28.2	37.5	32.0	43.9	32.0	44.8

These adjustments were accomplished by comparing what actual employment was by sector by State in 1974 with that which would result from the OBERS projection if the OBERS 1970 to 1980 growth rates by sector were applied from 1970 to 1974 to each sector. The difference was added on as a one-time adjustment to employment. The corresponding earnings adjustments by sector were calculated by applying the equations which link employment and earnings as developed in the previous section.

The incremental adjustments to employment and earnings for the States were allocated across the sub-State areas based upon the census estimates of population change in each sub-State area between 1970 and 1974. It was necessary to use population estimates for 1974 by sub-State area to allocate the adjustments across sub-State areas since employment data by sub-State area for all States were not available for years later than 1972.

The net effect of these adjustments was essentially to change the base year of the OBERS projections from 1971 to 1974.

5.2 Agricultural Adjustment

Probably the most difficult sector to project, at least at the present time, is the agricultural sector. Historically, this sector of the Region's economy has experienced an average annual decline in employment of 2.6 percent from 1950 to 1974. On the other hand, earnings have fluctuated widely from year-to-year. For instance, regional earnings in agriculture increased by approximately 160 percent from 1970 to 1973, and yet fell by 38 percent from 1973 to 1974. Prior to 1972, the year to year fluctuations in earnings were largely the result of weather conditions, since government acreage controls and price supports tended to stabilize market prices for the major crops. However, since 1972, a number of factors, in addition to weather, have destabilized agricultural earnings. First, the large agricultural surpluses of the 1950's and the 1960's no longer exist. Second, the Government has lifted acreage controls on the major crops grown in the Region. Third, major export sales and the absence of large surpluses have tended to both increase and destabilize commodity prices.

In terms of the future, there are numerous factors, in addition to the weather, which make it extremely difficult to accurately predict agricultural earnings and employment. For instance, what will be the role of the U.S. in alleviating current and future world food pressures? Will U.S. agriculture be able to export all potential production over and above domestic consumption, or will domestic surpluses be rebuilt with the eventual re-establishment of acreage controls? And, finally, will worker productivity in agriculture continue to increase at its historical pace, or will there be a general slowdown in this area?

Historical trends seem to offer little or no guidance as to future conditions in these areas. Although these factors are not necessarily unique to the agricultural sector, they seem to affect this sector more acutely than they do other sectors. Consequently, we are painfully aware that projections of earnings and employment for the Region's agricultural sector out of necessity be relatively more arbitrary than such projections for other sectors.

¹
From discussions with agricultural economists, it appears that the long-term secular decline in agricultural employment will likely bottom out at or near current levels. In fact there is some evidence to suggest that this may have begun to happen. For instance, the Region's agricultural employment increased from 1972 to 1973, but fell back to the 1970 level in 1974. It should be remembered that 1973 was an exceptionally good year for agriculture in the Region, both in terms of yields and commodity prices. On the other hand, the weather was very poor in 1974 contributing to low yields, plus there was some softening in commodity prices. In any event, agricultural employment in the Region in 1974 was at the 1970 level.

It was concluded that agriculture employment may still experience some decline, but at a rate significantly less than the Region's average annual rate of decline from 1950 to 1974 of 2.6 percent. In light of these expectations, agricultural employment was projected to decline through 1980 at a rate of about one-third the 1950 to 1974 rate of decline. Furthermore, it was assumed that the decline in agricultural employment would bottom out by 1980, and thus, agricultural employment in 1985 was projected to be at the 1980 level.

Due to the extreme fluctuations in earnings, it was not possible to develop reliable trends in earnings per employee based upon historical data. For instance, if 1950 and 1972 are considered to be typical years, average earnings per worker increased at an average annual rate of 2.7 percent during this period. On the other hand, if the period of 1950 to 1970 is used as the base, average earnings per worker increased at an average annual rate of only 1.6 percent.² The assumption used in this study is that earnings per worker in agriculture would increase at an average annual rate of 2.0 percent. Admittedly, this is a somewhat arbitrary assumption, and other assumptions may be equally valid. However, this assumption tends to maintain the relative relationship between average earnings per worker in agriculture with the

¹

Also see T. M. Reynolds, E. O. Heady, and D. O. Mitchell, Alternative Futures for American Agricultural Structure, Policies, Income, Employment, and Exports: A Recursive Simulation, Center for Agricultural and Rural Development, Iowa State University, Ames, June, 1975.

²

For the period 1950-1974, the average annual increase is estimated at 3.4 percent. It is uncertain whether or not 1973 and 1974 are representative years for the future.

average earnings per employee in other sectors. If earnings per worker are projected to increase at a rate significantly greater than 2 percent, then the relative relationship of earnings per worker between the sectors will likely induce more employment in agriculture. Conversely, less employment will likely occur in agriculture if earnings per worker in agriculture grow at a rate significantly less than 2 percent.

In summary, "adjusted" OBERS agricultural earnings were estimated by increasing the earnings per employee ratio in agriculture at an annual rate of 2 percent in each sub-State area. The base earnings per employee ratio upon which this growth rate was applied was the average of the 1968, 1970 and 1972 ratios except in the sub-State areas of North Dakota and South Dakota and the West sub-State area of Nebraska. In these areas the 1972 ratio appeared to be a more appropriate base.

Also, in Southeast Nebraska the base ratio used was the average earnings per employee for 1970 and 1972. Total agricultural earnings were then estimated by multiplying the earnings per employee ratio determined for each sub-State area for 1980 and 1985 by the estimates of agricultural employment.

The net effect of these assumptions is that the Region's agricultural earnings were projected to be \$2.0 billion in 1980 and \$2.2 billion in 1985, compared to OBERS projections of \$1.8 billion and \$1.9 billion (all in 1967 prices), respectively.

5.3 Manufacturing Adjustment

As described elsewhere in this report, a survey was conducted of major business firms in the Region. The results of this survey indicated that given the short-term plans of these firms, manufacturing employment in North Dakota and in South Dakota would likely grow at a much faster pace through 1980 than was reflected in the OBERS projections. Consequently, manufacturing employment was increased by 1,035 in North Dakota and by 4,125 in South Dakota over the level of employment projected in the OBERS projections. This additional manufacturing employment was allocated across the sub-State areas in proportion to the manufacturing employment in each sub-State area. The earnings associated with this additional employment were estimated using the equations described earlier. The earnings multipliers, discussed previously, were used to estimate the generated earnings in the non-basic or the service sectors. And finally, the employment/earnings equations were used to estimate the generated employment in the non-basic or service sectors.

An additional adjustment was made to the OBERS projections of manufacturing earnings for the period 1980 to 1985. After the foregoing

adjustments, manufacturing earnings in the Region were projected to increase at an average annual rate of 4.5 percent from 1970 to 1980, and at 3.4 percent from 1980 to 1985. With the various power plant developments expected between now and 1980, the Region should have an even larger surplus of electrical power than currently exists. This coupled with the fact that many areas outside the Region are feeling a power crunch, it seems reasonable to expect that the attractiveness of the Region to new manufacturing will be enhanced substantially. Consequently, it seems unreasonable to expect a slower growth rate in manufacturing earnings from 1980 to 1985 than is projected to exist from 1970 to 1980. Therefore, the OBERS projections of manufacturing earnings in 1985 for the Region were increased in order to achieve an average annual growth rate of 4.5 percent from 1980 to 1985. This incremental increase in manufacturing earnings for the Region was distributed across the States and the sub-State areas in proportion to the previously projected levels of manufacturing earnings for 1985. The employment and multiplier effects associated with this incremental change in manufacturing earnings were computed using the same methodology described with reference to the manufacturing adjustments in North Dakota and South Dakota for the period 1975 to 1980.

6.0 Earnings and Employment Projections

The "adjusted" OBERS projections, described in the foregoing sections, became the base upon which alternative levels of energy (and other) developments, not taken into account in the OBERS projections, could be evaluated. In order to determine the range of potential energy developments in the Old West Region, extensive interviews were performed with public and private officials concerned with such development (see Appendix G). In addition, numerous studies have been conducted by various groups relating to the area's potential for energy and other developments. These studies, interviews and surveys indicate the energy related industries of coal mining, power generation, coal gasification, and allied activities are potential sources of rapid economic expansion.

From the information gathered from the various sources noted above, a range was constructed of three alternative (i.e., expected, low and high) levels of energy and other developments which were felt to be over and above what was already included in the "adjusted" OBERS projections. Depending upon how the Federal Government, the various States and other players act insofar as encouraging or discouraging various development projects, any one of the three alternative paths are achievable; although one alternative is the expected or best estimate projection.

Appendix G contains the specific projects included in each of the three different energy development scenarios. Based upon interviews with the principals involved in various projects as well as available published data, estimates of direct employment resulting from the various projects within each development path were calculated. Earnings resulting from the increased employment were obtained by applying expected salary by

type of activity (see Table F-50) to the employment. The earnings multipliers, discussed previously, were used to estimate generated earnings in the non-basic or service sectors of the economy. The total incremental non-basic sector earnings were distributed across each of the non-basic sectors in proportion to each sector's share of total non-basic earnings in each respective year (i.e., 1980 and 1985) as indicated by the OBERS projections. Incremental non-basic sector employment changes for each of the alternative growth paths were estimated from earnings using the earnings to employment equations presented previously in this appendix.

The expected baseline, low estimate alternatives and high estimate alternative projections were generated by adding the basic and non-basic or service incremental estimates of employment and earnings for each growth path to the "adjusted" OBERS projections for each sub-State area and each industrial sector. These projections are presented in Tables F-2 through F-49.

7.0 Population Projections

The basic assumption used in developing population projections is that workers will migrate to areas with employment opportunities and away from slow growth or declining areas. The specific steps used to arrive at the projections of population are discussed below.

The first step was to estimate the expected labor supply (including only employed persons, that is, excluding unemployed persons) due to natural population increase for each sub-State area. Appendix H contains a description of the methodology used to project the natural increase population by age and sex and by sub-State area for 1980 and 1985. Employment participation rates by age and by sex were applied to the natural population increase projections to obtain estimates of the expected labor supply (employed persons only) due to natural population increase.

Due to the paucity of data, employment participation rates were projected on a State basis and are shown in Tables F-52 through F-56. These were projected from estimates of employment participation rates for the U.S. (see Table F-51) and the historical differences between labor force participation rates in the respective States by age and by sex, and the corresponding national rates. It was assumed that the State differences would continue to diminish (see footnotes to Tables F-52 through F-56). It should be emphasized that the participation rates in Tables F-51 through F-56 are employment rates, not labor force rates.

TABLE F-50
 DIRECT EMPLOYMENT
 ANNUAL SALARY LEVELS BY TYPE OF ACTIVITY
 1980 and 1985
 (1967 dollars)

	1980	1985
Construction(1)	13,700	15,100
Mining(2)	13,000	14,300
Railroad Transport(3)	12,600	14,600
Power Plant Operation(2)	13,900	16,100
Gasification Plant Operation(2)	13,200	15,400

- Sources: (1) White, Warren G., "Socio-Economic Impacts of Coal Development in Nebraska". (Assumes only a nine month work year).
- (2) Dalsted, Normal L., etal. "Energy Resources Development in the Northern Great Plains: A Summary of Economic Impacts".
- (3) Extrapolated from data obtained from Wyoming Employment Security Commission and U.S. Department of Commerce, Bureau of Economic Analysis.

Table F-51

**EMPLOYMENT PARTICIPATION RATE PROJECTIONS
BY AGE AND SEX
UNITED STATES
1980 and 1985
(in percent of age group)**

	1980		1985	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
15 - 19	40.4	31.1	39.2	31.1
20 - 24	81.8	57.7	81.8	60.2
25 - 29	93.6	49.3	93.6	52.5
30 - 34	93.6	49.3	93.6	52.5
35 - 39	94.7	54.6	94.7	58.1
40 - 44	94.7	54.6	94.7	58.1
45 - 49	92.6	57.8	92.6	59.8
50 - 54	92.6	57.8	92.6	59.8
55 - 59	79.7	47.3	79.2	49.3
60 - 64	79.7	47.3	79.2	49.3
65+	18.4	9.5	16.0	9.5

Source: Based upon regression equations derived from historical data in Manpower Report of the President, March 1973, Tables A-2 and A-15.

Table F-52

**EMPLOYMENT PARTICIPATION RATE PROJECTIONS
BY AGE AND SEX
MONTANA
1980 and 1985
(in percent of age group)**

	1980		1985	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
15 - 19	39.4	31.0	38.5	31.0
20 - 24	79.5	53.2	80.1	56.7
25 - 29	93.1	46.1	93.3	49.9
30 - 34	93.1	46.1	93.3	49.9
35 - 39	95.2	52.4	95.1	56.4
40 - 44	95.2	52.4	95.1	56.4
45 - 49	92.7	55.4	92.7	58.3
50 - 54	92.7	55.9	92.7	58.3
55 - 59	79.8	45.7	79.2	48.1
60 - 64	79.8	45.7	79.2	48.1
65+	18.1	9.8	15.8	9.7

Source: Derived from projections of U.S. employment participation rates by age and sex (see Table F-51) and the relationship between the 1970 U.S. and state labor force participation rates by age and sex (U.S. Bureau of the Census, General Social and Economic Characteristics Table 46). Projections assume that the percent difference between the U.S. and the state rates in 1970 will diminish by 1/3 by 1980 and by 1/2 by 1985.

Table F-53

**EMPLOYMENT PARTICIPATION RATE PROJECTIONS
BY AGE AND SEX
NEBRASKA
1980 and 1985
(in percent of age group)**

	1980		1985	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
15 - 19	43.6	35.5	41.5	34.4
20 - 24	87.1	60.0	85.5	62.0
25 - 29	94.4	48.7	94.2	52.0
30 - 34	94.4	48.7	94.2	52.0
35 - 39	95.8	53.4	95.5	57.2
40 - 44	95.8	53.4	95.5	57.2
45 - 49	94.8	58.1	95.9	60.1
50 - 54	94.8	58.1	95.9	60.1
55 - 59	81.6	47.6	80.6	49.5
60 - 64	81.6	47.6	80.6	49.5
65+	21.9	10.6	18.3	10.4

Source: Derived from projections of U.S. employment participation rates by age and sex (see Table F-51) and the relationship between the 1970 U.S. and state labor force participation rates by age and sex (U.S. Bureau of the Census, General Social and Economic Characteristics Table 46). Projections assume that the percent difference between the U.S. and the state rates in 1970 will diminish by 1/3 by 1980 and by 1/2 by 1985.

Table F-54

EMPLOYMENT PARTICIPATION RATE PROJECTIONS
BY AGE AND SEX
NORTH DAKOTA
1980 and 1985
(in percent of age group)

	1980		1985	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
15 - 19	36.5	31.0	36.3	31.0
20 - 24	79.5	55.9	80.1	58.8
25 - 29	93.1	43.1	93.2	47.5
30 - 34	93.1	43.1	93.2	47.5
35 - 39	94.4	47.1	94.5	52.2
40 - 44	94.4	47.1	94.5	52.2
45 - 49	91.2	51.8	91.5	55.1
50 - 54	91.2	51.8	91.5	55.1
55 - 59	78.5	42.4	78.3	45.4
60 - 64	78.5	42.4	78.3	45.4
65+	19.1	9.9	16.5	9.8

Source: Derived from projections of U.S. employment participation rates by age and sex (see Table F-51) and the relationship between the 1970 U.S. and state labor force participation rates by age and sex (U.S. Bureau of the Census, General Social and Economic Characteristics Table 46). Projections assume that the percent difference between the U.S. and the state rates in 1970 will diminish by 1/3 by 1980 and by 1/2 by 1985.

Table F-55

**EMPLOYMENT PARTICIPATION RATE PROJECTIONS
BY AGE AND SEX
SOUTH DAKOTA
1980 and 1985
(in percent of age group)**

	1980		1985	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
15 - 19	40.5	32.3	39.2	32.3
20 - 24	79.6	56.1	80.2	59.0
25 - 29	94.0	45.6	93.9	49.5
30 - 34	94.0	45.6	93.9	49.5
35 - 39	95.6	51.1	95.0	55.3
40 - 44	95.6	51.1	95.0	55.3
45 - 49	94.0	56.4	93.7	58.7
50 - 54	94.0	56.4	93.7	58.7
55 - 59	80.9	46.2	80.1	48.4
60 - 64	80.9	46.2	80.1	48.4
65+	22.2	10.6	18.5	10.3

Source: Derived from projections of U.S. employment participation rates by age and sex (see Table F-51) and the relationship between the 1970 U.S. and state labor force participation rates by age and sex (U.S. Bureau of the Census, General Social and Economic Characteristics Table 46). Projections assume that the percent difference between the U.S. and the state rates in 1970 will diminish by 1/3 by 1980 and by 1/2 by 1985.

Table F-56

**EMPLOYMENT PARTICIPATION RATE PROJECTIONS
BY AGE AND SEX
WYOMING
1980 and 1985
(in percent of age group)**

	1980		1985	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
15 - 19	41.0	31.9	39.7	31.7
20 - 24	80.2	50.8	80.6	54.8
25 - 29	93.4	46.6	93.5	50.3
30 - 34	93.4	46.6	93.5	50.3
35 - 39	95.6	55.5	95.3	58.9
40 - 44	95.6	55.5	95.3	58.9
45 - 49	93.8	57.1	93.5	59.2
50 - 54	93.8	57.1	93.5	59.2
55 - 59	80.7	46.7	80.0	48.8
60 - 64	80.7	46.7	80.0	48.8
65+	19.9	10.8	17.0	10.5

Source: Derived from projections of U.S. employment participation rates by age and sex (see Table F-51) and the relationship between the 1970 U.S. and state labor force participation rates by age and sex (U.S. Bureau of the Census, General Social and Economic Characteristics Table 46). Projections assume that the percent difference between the U.S. and the state rates in 1970 will diminish by 1/3 by 1980 and by 1/2 by 1985.

Tables F-57 through F-74 show estimates of natural increase population by age and by sex by sub-State area for 1980 and 1985. These tables also show estimates of the natural increase population labor supply (i.e., only the employed) were developed using the projections of the employment participation rates (Tables F-52 through F-56) and the natural increase population projections. It should be pointed out that these estimates of labor supply are consistent with the "labor force" definition of employment, as opposed to the "work force" definition. The "work force" definition counts the total number of jobs, whereas the "labor force" definition counts only the number of people with at least one job. Consequently, the "work force" estimates are larger than the "labor force" estimates due to the fact that some individuals hold more than one job. The employment projections contained in Tables F-2 through F-49 are consistent with the "work force" definition of employment.

The second step in estimating population was to compute the job surplus or deficit before migration by sub-State area. This was accomplished by converting the employment demand estimates--"work force" definition--in Tables F-2 through F-49, to employment estimates consistent with a "labor force" definition. These adjustments were made by using the ratios of "work force" employment to "labor force" employment for 1972. The job surplus or deficit by sub-State area was computed by taking the difference between estimates of employment demand--"labor force" definition--and projections of the expected labor supply (employed personally) due to natural population increase.

The third step was to compute the employment induced net population migration by sub-State area resulting from either job surpluses or deficits. Since work force age migrants tend to be younger than the average work force age population, it was necessary to project the age and sex distribution of the employment induced population migration. Projections of the age and sex distribution of employment induced migration (numbers of persons per thousand jobs) for the Region as a whole are contained in Table F-75. These projections are based upon 1) the estimates of the 1965-1970 migration data for the Old West Region States, 2) the projections of U.S. employment participation rates (Table F-51), and 3) a fertility rate of 70 per 1,000 women 15-44 years of age (see footnote to Table F-75). Due to the paucity of data, it was necessary to use the Region-wide estimates of the age and sex distribution of the employment induced net migration for each sub-State.

The final step in estimating population by age and sex and by sub-State area was to add the projections of net migration to the projections of natural increase population. Population projections by age and by Region, State and sub-State area are presented in Tables F-76 through F-99.¹

8.0 Personal Income Projections

The projections of total personal income by sub-State area are based upon the projections of earnings by sub-State area (Tables F-2 through F-49) and the OBERS projections of the ratios of personal income to earnings by sub-State area. Projections of per capita income were,

¹ Totals in these tables may not add due to rounding.

Table F-57
EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
MONTANA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	13,479	12,874	5,311	3,991	10,331	9,856	3,977	3,055
20 - 24	14,529	14,188	11,551	7,548	13,357	12,826	10,699	7,272
25 - 29	11,715	11,810	10,907	5,444	14,387	14,129	13,423	7,050
30 - 34	8,426	8,384	7,845	3,867	11,609	11,753	10,831	5,865
35 - 39	7,208	7,314	6,862	3,833	8,332	8,323	7,924	4,694
40 - 44	6,405	6,744	6,098	3,534	7,089	7,242	6,742	4,084
45 - 49	6,305	6,434	5,845	3,597	6,239	6,642	5,784	3,872
50 - 54	6,386	6,607	5,920	3,693	6,069	6,319	5,626	3,684
55 - 59	6,285	6,423	5,015	2,935	5,986	6,420	4,741	3,088
60 - 64	5,882	6,230	4,694	2,847	5,668	6,146	4,489	2,956
65+	12,321	15,509	2,230	1,520	13,351	17,538	2,109	1,701
Sub-Total	98,941	102,517	72,276	42,807	102,418	107,194	76,345	47,323
Total	201,458		115,083		209,612		123,668	

Table F-58
EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
MONTANA--SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	10,908	10,506	4,298	3,257	8,640	8,400	3,326	2,604
20 - 24	11,874	11,854	9,440	6,306	10,810	10,467	8,659	5,935
25 - 29	11,243	11,353	10,467	5,234	11,758	11,804	10,970	5,890
30 - 34	8,389	8,841	7,810	4,076	11,141	11,298	10,395	5,638
35 - 39	6,412	6,465	6,104	3,388	8,295	8,782	7,889	4,953
40 - 44	5,425	5,710	5,165	2,992	6,307	6,401	5,998	3,610
45 - 49	5,299	5,614	4,912	3,138	5,285	5,624	4,899	3,279
50 - 54	5,753	5,988	5,333	3,347	5,101	5,514	4,729	3,215
55 - 59	5,497	5,793	4,385	2,647	5,393	5,818	4,271	2,798
60 - 64	5,112	5,610	4,079	2,564	4,955	5,543	3,924	2,666
65+	10,752	13,881	1,946	1,360	11,637	15,721	1,839	1,525
Sub-Total	86,662	91,615	63,940	38,309	89,322	95,372	66,899	42,113
Total	178,277		102,249		184,694		109,012	

Table F-59

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
MONTANA-WEST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase		Natural Increase		Natural Increase		Natural Increase	
	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	12,310	11,758	4,850	3,645	9,734	9,383	3,748	2,909
20 - 24	12,778	12,603	10,159	6,705	12,199	11,714	9,771	6,642
25 - 29	11,890	11,396	11,070	5,254	12,653	12,550	11,805	6,262
30 - 34	8,236	8,535	7,668	3,935	11,783	11,342	10,994	5,660
35 - 39	7,125	7,011	6,783	3,674	8,144	8,471	7,745	4,781
40 - 44	6,283	6,282	5,981	3,292	7,007	6,941	6,664	3,915
45 - 49	5,601	5,805	5,192	3,245	6,120	6,188	5,673	3,608
50 - 54	6,058	6,106	5,616	3,413	5,391	5,701	4,997	3,324
55 - 59	5,849	6,039	4,668	2,760	5,680	5,933	4,499	2,854
60 - 64	5,607	6,324	4,474	2,890	5,270	5,778	4,174	2,779
65+	12,952	16,465	2,344	1,614	13,554	18,350	2,142	1,780
Sub-Total	94,689	98,324	68,804	40,425	97,535	102,351	72,211	44,513
Total	193,013		109,230		199,886		116,724	

Table F-60
EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NEBRASKA-CENTRAL
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase		Natural Increase		Natural Increase		Natural Increase	
	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	14,782	14,432	6,445	5,123	12,050	11,702	5,001	4,025
20 - 24	16,198	15,401	14,108	9,241	14,660	14,388	12,578	8,921
25 - 29	14,719	14,618	13,895	7,119	16,086	15,381	15,153	7,998
30 - 34	9,197	10,594	8,682	5,159	14,629	14,590	13,781	7,587
35 - 39	8,326	8,427	7,976	4,500	9,121	10,554	8,711	6,037
40 - 44	7,282	7,623	6,976	4,071	8,213	8,368	7,843	4,786
45 - 49	7,183	8,016	6,809	4,657	1,114	7,531	6,822	4,526
50 - 54	8,113	8,319	7,691	4,833	5,949	7,914	6,564	4,756
55 - 59	8,012	8,435	6,538	4,015	7,645	8,125	6,549	4,022
60 - 64	7,268	8,348	5,931	3,974	1,262	8,112	5,853	4,015
65+	21,507	28,749	4,412	3,047	21,578	29,480	3,627	3,066
Sub-Total	122,587	132,962	89,463	55,739	125,307	136,145	92,582	59,739
Total	255,549		145,202		261,452		152,321	

Table F-61

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NEBRASKA-EAST (OMAHA)
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	30,577	29,535	13,332	14,485	25,134	24,321	10,431	8,366
20 - 24	29,908	29,067	26,050	17,440	30,325	29,447	26,017	18,257
25 - 29	24,495	26,106	23,123	12,714	29,701	29,029	27,978	15,095
30 - 34	20,861	24,126	19,693	11,749	24,346	26,057	22,934	13,550
35 - 39	18,091	18,912	17,331	10,099	20,688	24,034	19,757	13,747
40 - 44	15,660	16,436	15,009	8,777	17,845	18,779	17,042	10,742
45 - 49	15,430	15,618	14,628	9,074	15,300	16,237	14,673	9,758
50 - 54	14,548	15,162	13,792	8,809	14,929	15,420	14,317	9,267
55 - 59	13,545	14,490	11,053	6,897	13,707	14,809	11,049	7,330
60 - 64	10,726	12,699	8,754	6,045	12,277	13,936	9,895	6,898
65+	26,153	37,156	5,337	3,939	28,323	40,158	4,739	4,176
Sub-Total	219,996	239,307	168,102	110,028	232,577	252,227	178,832	117,186
Total	459,303		278,130		484,804		296,018	

Table F-62
EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NEBRASKA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase		Natural Increase		Natural Increase		Natural Increase	
	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	11,020	10,729	4,805	3,809	8,464	8,296	3,513	2,854
20 - 24	11,951	11,192	10,409	6,715	10,928	10,696	9,376	6,632
25 - 29	10,169	10,056	9,600	4,897	11,869	11,177	11,181	5,812
30 - 34	5,701	6,249	5,382	3,043	10,107	10,037	9,521	5,219
35 - 39	5,283	5,415	5,061	2,892	5,654	6,225	5,400	3,561
40 - 44	4,864	5,020	4,660	2,681	5,211	5,377	4,977	3,076
45 - 49	4,929	5,246	4,673	3,048	4,752	4,960	4,557	2,981
50 - 54	5,472	5,651	5,187	3,283	4,769	5,180	4,573	3,113
55 - 59	5,430	5,516	4,431	2,626	5,156	5,520	4,156	2,732
60 - 64	4,792	5,431	3,910	2,585	4,922	5,305	3,967	2,626
65+	14,882	19,118	3,055	2,027	14,677	19,484	2,469	2,026
Sub-Total	84,493	89,623	61,173	37,606	86,509	92,257	63,907	40,632
Total	174,116		98,779		178,766		104,322	

Table F-63
EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NEBRASKA-SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase		Natural Increase		Natural Increase		Natural Increase	
	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections	Population Projection	Employment Projections
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	13,476	13,020	5,876	4,622	11,304	10,851	4,691	3,733
20 - 24	14,247	13,625	12,409	8,175	13,364	12,981	11,466	8,048
25 - 29	15,924	15,876	15,032	7,732	14,148	13,607	13,327	7,076
30 - 34	15,221	15,141	14,369	7,374	15,827	15,846	14,909	8,240
35 - 39	9,565	9,253	9,163	4,941	15,095	15,084	14,416	8,628
40 - 44	7,796	7,477	7,469	3,993	9,435	9,188	9,013	5,256
45 - 49	7,089	7,483	6,720	4,348	7,617	7,386	7,308	4,439
50 - 54	7,549	7,994	7,156	4,645	6,859	7,388	5,580	4,440
55 - 59	7,481	8,003	6,104	3,809	7,113	7,808	5,733	3,865
60 - 64	6,606	7,652	5,310	3,642	6,781	7,697	5,465	3,810
65+	18,354	26,401	3,760	2,799	18,844	27,037	3,163	2,812
Sub-Total	123,308	131,925	93,448	56,080	126,387	134,873	96,071	60,347
Total	255,233		149,528		261,260		156,418	

Table F-64

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NEBRASKA-WEST (PANHANDLE)
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	4,530	4,470	1,975	1,587	3,509	3,463	1,456	1,191
20 - 24	5,089	4,957	4,433	2,974	4,492	4,456	3,854	2,763
25 - 29	4,989	4,833	4,710	2,354	5,054	4,950	4,761	2,574
30 - 34	3,471	3,220	3,277	1,568	4,959	4,824	4,671	2,508
35 - 39	2,402	2,490	2,301	1,330	3,443	3,207	3,288	1,834
40 - 44	2,140	2,368	2,050	1,265	2,369	2,472	2,262	1,414
45 - 49	2,206	2,435	2,091	1,415	2,091	2,340	2,005	1,406
50 - 54	2,543	2,735	2,411	1,589	2,134	2,404	2,047	1,445
55 - 59	2,409	2,667	1,962	1,269	2,396	2,671	1,931	1,322
60 - 64	2,180	2,501	1,779	1,190	2,179	2,565	1,756	1,270
65+	6,068	7,816	1,241	828	6,244	8,290	1,047	862
Sub-Total	38,022	40,492	28,230	17,369	38,870	41,642	29,078	18,589
Total	78,514		45,599		80,512		47,667	

Table F-65

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NORTH DAKOTA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	7,682	7,458	2,804	2,312	6,324	5,945	2,296	1,843
20 - 24	8,072	7,896	6,417	4,414	7,623	7,440	6,106	4,375
25 - 29	7,364	7,088	6,856	3,055	8,017	7,886	7,472	3,746
30 - 34	7,346	6,017	6,839	2,593	7,320	7,076	6,822	3,361
35 - 39	4,389	3,926	4,143	1,849	7,286	5,995	6,885	3,129
40 - 44	3,453	3,587	3,260	1,689	4,330	3,899	4,092	2,035
45 - 49	3,562	3,475	3,249	1,800	3,374	3,544	3,087	1,953
50 - 54	3,367	3,424	3,071	1,774	3,445	3,431	3,152	1,890
55 - 59	3,280	3,298	2,575	1,389	3,172	3,344	2,484	1,518
60 - 64	2,963	3,181	2,326	1,349	2,972	3,171	2,327	1,440
65+	7,745	9,805	1,479	971	7,798	10,423	1,287	1,021
Sub-Total	59,223	59,155	43,019	23,195	61,661	62,154	46,010	26,311
Total	118,378		66,214		123,815		72,321	

Table F-66

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NORTH DAKOTA-NORTHWEST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	7,050	6,768	2,573	2,098	5,669	5,602	2,058	1,737
20 - 24	7,598	7,357	6,040	4,113	6,996	6,752	5,604	3,970
25 - 29	6,572	6,454	6,119	2,782	7,546	7,348	7,033	3,490
30 - 34	5,842	4,868	5,439	2,098	6,532	6,442	6,088	3,060
35 - 39	3,832	3,778	3,617	1,779	5,794	4,850	5,475	2,532
40 - 44	3,440	3,519	3,247	1,657	3,780	3,752	3,572	1,959
45 - 49	3,507	3,355	3,198	1,738	3,361	3,477	3,075	1,916
50 - 54	3,234	3,274	2,949	1,696	3,392	3,311	3,104	1,824
55 - 59	2,976	3,027	2,336	1,283	3,047	3,197	2,386	1,451
60 - 64	2,875	3,154	2,257	1,337	2,697	2,910	2,112	1,321
65+	7,108	8,508	1,358	842	7,367	9,521	1,216	933
Sub-Total	54,034	54,062	39,133	21,423	56,181	57,162	41,723	24,193
Total	108,096		60,556		113,343		65,916	

Table F-67

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NORTH DAKOTA-SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	9,589	9,068	3,500	2,811	7,540	7,072	2,737	2,192
20 - 24	10,683	10,297	8,493	5,756	9,515	9,046	7,622	5,319
25 - 29	11,063	10,414	10,300	4,488	10,611	10,284	9,889	4,885
30 - 34	7,846	7,547	7,305	3,253	10,996	10,396	10,248	4,938
35 - 39	5,314	5,063	5,016	2,385	7,781	7,519	7,353	3,925
40 - 44	4,469	4,675	4,219	2,202	5,242	5,028	4,954	2,625
45 - 49	4,424	4,742	4,035	2,456	4,367	4,619	3,996	2,545
50 - 54	5,151	5,257	4,689	2,723	4,280	4,681	3,916	2,579
55 - 59	4,898	4,889	3,845	2,073	4,843	5,133	3,792	2,330
60 - 64	4,483	4,913	3,519	2,083	4,439	4,701	3,476	2,134
65+	11,997	15,741	2,291	1,558	11,979	16,570	1,977	1,624
Sub-Total	79,907	82,606	57,212	31,788	81,593	85,049	59,960	35,096
Total	162,513		89,000		166,642		95,056	

Table F-68

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
NORTH DAKOTA-SOUTHWEST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	8,276	8,119	3,021	2,517	6,639	6,326	2,410	1,961
20 - 24	9,101	8,802	7,235	4,920	8,212	8,099	6,578	4,762
25 - 29	7,574	7,648	7,051	3,296	9,039	8,792	8,424	4,176
30 - 34	4,031	4,876	3,753	2,102	7,529	7,635	7,017	3,527
35 - 39	4,036	3,920	3,810	1,846	3,998	4,858	3,778	2,537
40 - 44	3,512	3,700	3,315	1,743	3,982	3,893	3,763	2,032
45 - 49	3,609	3,836	3,291	1,987	3,431	3,656	3,139	2,014
50 - 54	3,894	3,926	3,551	2,034	3,491	3,787	3,194	2,087
55 - 59	3,645	3,851	2,861	1,633	3,669	3,834	2,873	1,741
60 - 64	3,482	3,691	2,733	1,565	3,303	3,703	2,586	1,681
65+	7,911	10,141	1,511	1,004	8,449	11,300	1,394	1,107
Sub-Total	59,071	62,510	42,132	24,647	61,742	65,883	45,156	27,725
Total	121,581		66,779		127,625		72,881	

Table F-69

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
SOUTH DAKOTA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	10,515	10,001	4,259	3,230	7,984	7,730	3,130	2,497
20 - 24	11,740	11,285	9,345	6,331	10,424	9,967	8,360	5,880
25 - 29	11,668	11,579	10,968	5,280	11,639	11,252	10,929	5,570
30 - 34	7,494	7,525	7,044	3,431	11,576	11,537	10,870	5,711
35 - 39	5,109	4,969	4,884	2,539	7,419	7,484	7,048	4,139
40 - 44	4,474	4,703	4,277	2,403	5,031	4,926	4,779	2,724
45 - 49	4,460	4,994	4,192	2,817	4,363	4,639	4,088	2,723
50 - 54	5,312	5,586	4,993	3,151	4,324	4,940	4,052	2,900
55 - 59	5,528	5,682	4,472	2,625	5,016	5,467	4,018	2,646
60 - 64	5,029	5,542	4,068	2,560	5,021	5,475	4,022	2,650
65+	13,275	18,019	2,947	1,910	13,340	18,918	2,468	1,949
Sub-Total	84,604	89,885	61,449	36,277	86,137	92,335	63,764	39,389
Total	174,489		97,726		178,472		103,153	

Table F-70
 EMPLOYMENT PROJECTIONS
 BY AGE AND SEX
 OF NATURAL INCREASE POPULATION
 SOUTH DAKOTA-SOUTHEAST
 1980 AND 1985
 (in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	12,369	12,057	5,009	3,894	9,701	9,393	3,803	3,034
20 - 24	13,405	12,909	10,670	7,242	12,262	12,016	9,834	7,089
25 - 29	12,384	12,732	11,641	5,806	13,290	12,870	12,479	6,371
30 - 34	8,416	9,206	7,911	4,198	12,287	12,686	11,537	6,280
35 - 39	6,401	6,616	6,119	3,381	8,332	9,155	7,915	5,063
40 - 44	5,461	5,760	5,221	2,943	6,303	6,559	5,988	3,627
45 - 49	5,466	6,051	5,138	3,413	5,326	5,681	4,990	3,335
50 - 54	6,238	6,438	5,864	3,631	5,300	5,987	4,966	3,514
55 - 59	6,204	6,532	5,019	3,018	5,890	6,301	4,718	3,050
60 - 64	5,606	6,256	4,535	2,890	5,634	6,295	4,513	3,047
65+	13,922	19,960	3,091	2,116	14,318	21,070	2,649	2,170
Sub-Total	95,872	104,517	70,218	42,532	98,643	108,013	73,392	46,580
Total	200,389		112,750		206,656		119,972	

Table F-71

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
SOUTH DAKOTA-WEST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	11,841	11,491	4,796	3,712	9,584	9,338	3,757	3,016
20 - 24	12,329	12,129	9,814	6,804	11,738	11,452	9,414	6,757
25 - 29	10,620	10,178	9,983	4,641	12,223	12,092	11,477	5,986
30 - 34	8,082	7,365	7,597	3,358	10,537	10,141	9,894	5,020
35 - 39	5,828	5,970	5,572	3,051	8,001	7,325	7,601	4,051
40 - 44	5,098	5,590	4,874	2,856	5,739	5,918	5,452	3,273
45 - 49	5,389	5,586	5,066	3,151	4,973	5,513	4,660	3,236
50 - 54	5,484	5,389	5,155	3,039	5,224	5,526	4,895	3,244
55 - 59	5,095	5,131	4,122	2,371	5,178	5,274	4,148	2,553
60 - 64	4,453	4,752	3,602	2,195	4,627	4,944	3,706	2,393
65+	10,781	13,567	2,393	1,438	11,251	14,941	2,081	1,539
Sub-Total	85,000	87,148	62,974	36,616	89,075	92,464	67,085	41,068
Total	172,148		99,590		181,539		108,153	

Table F-72

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
WYOMING-EAST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	12,635	12,416	5,180	3,961	10,861	10,231	4,312	3,243
20 - 24	13,683	13,034	10,974	6,621	12,512	12,360	10,085	6,773
25 - 29	12,410	12,260	11,591	5,713	13,539	12,971	12,659	6,524
30 - 34	10,086	9,484	9,420	4,589	12,290	12,193	11,491	6,133
35 - 39	8,182	8,093	7,822	4,492	9,66	9,775	9,498	5,757
40 - 44	6,778	7,124	6,480	3,954	8,042	8,007	7,664	4,716
45 - 49	6,551	6,851	6,145	3,912	6,59	7,012	6,169	4,151
50 - 54	7,168	7,019	6,724	4,008	6,329	6,755	5,918	3,999
55 - 59	6,513	6,871	5,256	3,209	6,744	6,846	5,395	3,341
60 - 64	5,556	6,106	4,484	2,852	5,895	6,599	4,716	3,220
65+	12,067	15,615	3,031	1,686	13,023	17,663	2,214	1,855
Sub-Total	101,629	104,873	77,107	44,997	105,799	110,412	80,121	49,712
Total	206,502	211,474	121,474	216,211	129,833			

Table F-73

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
WYOMING-NORTHWEST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	2,313	2,219	948	708	1,876	1,717	745	544
20 - 24	2,667	2,525	2,139	1,283	2,290	2,209	1,846	1,211
25 - 29	2,342	2,168	2,187	1,010	2,639	2,513	2,467	1,264
30 - 34	1,069	1,315	998	613	2,319	2,157	2,168	1,085
35 - 39	1,252	1,361	1,197	664	1,056	1,305	1,006	769
40 - 44	1,153	1,191	1,102	612	1,230	1,347	1,172	793
45 - 49	1,116	1,286	1,047	734	1,122	1,173	1,049	694
50 - 54	1,271	1,336	1,192	763	1,079	1,268	1,009	751
55 - 59	1,274	1,263	1,028	590	1,196	1,303	957	636
60 - 64	1,116	1,255	901	586	1,153	1,213	922	592
65+	2,638	3,234	525	349	2,759	3,656	469	384
Sub-Total	18,211	19,153	13,264	7,912	18,719	19,861	13,810	8,723
Total	37,364		21,176		38,580		22,533	

Table F-74

EMPLOYMENT PROJECTIONS
BY AGE AND SEX
OF NATURAL INCREASE POPULATION
WYOMING-SOUTHWEST
1980 AND 1985
(in thousands)

Age Group	1980				1985			
	Natural Increase Population Projection		Natural Increase Employment Projections		Natural Increase Population Projection		Natural Increase Employment Projections	
	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	2,028	1,994	831	636	1,690	1,633	671	518
20 - 24	2,153	2,074	1,727	1,054	2,008	1,985	1,618	1,088
25 - 29	1,779	1,775	1,662	827	2,131	2,063	1,992	1,038
30 - 34	970	1,141	906	532	1,762	1,765	1,647	888
35 - 39	1,104	1,137	1,055	631	959	1,133	914	667
40 - 44	991	959	947	532	1,085	1,125	1,034	663
45 - 49	991	1,023	930	584	964	943	901	558
50 - 54	1,089	1,063	1,021	607	957	1,008	895	597
55 - 59	1,019	1,145	822	535	1,025	1,036	820	506
60 - 64	984	984	794	460	922	1,100	738	537
65+	2,180	2,540	434	274	2,343	2,877	398	302
Sub-Total	15,288	15,835	11,129	6,672	15,846	16,668	11,628	7,362
Total	31,123		17,801		32,514		18,990	

Table F-75
AGE AND SEX
DISTRIBUTION PROJECTION OF EMPLOYMENT INDUCED
MIGRATION

1980 AND 1985
(numbers of persons per thousand jobs)

Age	1980			1985		
	Male	Female	Total	Male	Female	Total
0-4	103	101	204	104	100	204
5-9	101	99	200	102	96	198
10-14	105	103	208	75	71	146
15-19	64	64	128	53	51	104
20-24	198	182	380	197	179	376
25-29	161	149	310	159	147	306
30-34	76	70	146	75	71	146
35-39	60	54	114	59	53	112
40-44	64	58	122	63	59	122
45-49	50	45	95	49	45	94
50-54	35	33	68	35	33	68
55-59	25	29	54	24	29	53
60-64	14	21	35	16	20	36
65+	-	-	-	-	-	-
Total	1,056	1,008	2,064	1,011	954	1,965

Source: Projections based upon (1) 1965 - 70 migration data for Old West Region States, U.S. Bureau of the Census, 1970 subject reports, final report P6(2) - 2B, Mobility for States and the Nation, Table 59, and (2) projections of U.S. employment participation rates by age and sex (see Table F-51). Fertility rate of 70 per 1,000 women (15 - 44 years of age) was used to estimate 0 - 9 age group in 1980, and 0 - 14 age group in 1985.

Table F-76

POPULATION BY AGE GROUP PROJECTIONS
GLO WEST REGION
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980 Population (after migration)					1985 Population (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	1,491.9	1,291.8	1,299.1	1,335.2	1,310.1	1,361.7	1,232.1	1,239.5	1,280.2	1,256.2	1,321.0
20 - 29	511.2	786.5	793.3	826.9	803.5	851.6	739.0	796.8	839.3	814.2	862.0
30 - 44	602.2	698.6	702.4	721.0	708.0	734.7	876.2	880.5	904.2	890.3	928.0
45 - 64	759.0	764.2	766.7	779.0	770.4	789.0	749.0	752.9	767.5	758.3	783.2
65+	429.3	489.2	489.2	489.2	489.2	489.2	516.4	516.4	516.4	516.4	516.4
Total	3,793.6	4,030.3	4,050.8	4,150.9	4,081.0	4,225.0	4,162.7	4,185.0	4,307.7	4,235.2	4,430.7

Table F-77
POPULATION BY AGE GROUP PROJECTIONS
MONTANA
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980 (after migration)					1985 (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	278.3	238.3	231.4	236.1	233.8	241.9	226.3	218.2	223.6	221.6	234.2
20 - 29	93.7	147.2	140.7	145.1	143.1	150.5	148.7	140.2	145.8	143.8	157.0
30 - 44	112.7	129.2	125.7	128.1	127.0	131.1	160.3	155.6	158.7	157.6	165.0
45 - 64	141.9	142.6	140.3	141.9	141.2	143.9	138.8	135.7	137.7	137.0	141.8
65+	68.8	81.9	81.8	81.8	81.8	81.8	90.1	90.1	90.1	90.1	90.1
Total	694.4	739.2	720.2	733.1	726.9	749.1	764.2	739.8	755.9	750.0	787.9

Table F-78
POPULATION BY AGE GROUP PROJECTIONS
MONTANA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980					1985				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	99.8	85.7	83.8	83.8	83.8	83.8	80.4	77.3	77.3	77.3	77.3
20 - 29	31.8	52.2	50.5	51.5	50.5	50.5	54.7	51.4	51.4	51.4	51.4
30 - 44	40.2	44.5	43.5	43.5	43.5	43.5	54.4	52.6	52.6	52.6	52.6
45 - 64	48.8	50.6	50.0	50.0	50.0	50.0	49.5	48.3	48.3	48.3	48.3
65+	23.7	27.8	27.8	27.8	27.8	27.8	30.9	30.9	30.9	30.9	30.9
Total	244.3	260.8	255.6	255.6	255.6	255.6	269.9	260.4	260.4	260.4	260.4

Table F-79

POPULATION BY AGE GROUP PROJECTIONS
MONTANA-SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980 Population (after migration)					1985 Population (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	85.7	73.1	73.8	78.4	76.2	84.2	70.6	70.9	76.2	74.3	86.8
20 - 29	30.5	46.3	46.9	51.2	49.1	56.6	44.9	45.2	50.8	48.7	61.9
30 - 44	35.0	41.3	41.6	44.0	42.9	47.0	52.2	52.4	55.5	54.3	61.7
45 - 64	43.2	44.7	44.9	46.5	45.8	48.4	43.2	43.3	45.3	44.6	49.4
65+	20.7	24.6	24.6	24.6	24.6	24.6	27.3	27.3	27.3	27.3	27.3
Total	215.1	230.0	232.0	244.9	238.7	260.9	238.2	239.0	255.1	249.2	287.1

Table F-8C
POPULATION BY AGE GROUP PROJECTIONS
MONTANA - WEST
1980 AND 1985
(in thousands)

Age Group	1980						1985					
	Natural Increase Projection	Adjusted OBERS Baseline	Population Expected Baseline	Low Estimate Alternative	High Estimate Alternative		Natural Increase Projection	Adjusted OBERS Baseline	Population Expected Baseline	Low Estimate Alternative	High Estimate Alternative	
0 - 19	92.8	79.5	73.8	73.8	73.8		75.3	70.1	70.1	70.1	70.1	
20 - 29	31.4	48.7	43.4	43.4	43.4		49.1	43.6	43.6	43.6	43.6	
30 - 44	37.4	43.5	40.6	40.6	40.6		53.7	50.7	50.7	50.7	50.7	
45 - 64	49.0	47.4	45.5	45.5	45.5		46.1	44.1	44.1	44.1	44.1	
65+	24.3	29.4	29.4	29.4	29.4		31.9	31.9	31.9	31.9	31.0	
Total	234.9	248.5	232.6	232.4	232.4		256.1	240.4	240.4	240.4	240.4	

POPULATION BY AGE GROUP PROJECTIONS
NEBRASKA
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	Natural Increase Projection	Adjusted OBERS Baseline	Population Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Population Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970 Census										
0 - 19	563.6	495.7	500.4	503.6	501.9	505.9				
20 - 29	203.8	293.4	297.8	300.9	299.3	303.0				
30 - 44	237.0	278.6	280.9	282.6	281.7	283.8				
45 - 64	295.6	297.9	300.0	300.7	300.1	301.5				
65+	183.5	200.6	200.6	200.6	200.6	200.6				
Total	1,483.5	1,566.2	1,579.1	1,588.0	1,583.3	1,594.6				

Table F-22
POPULATION BY AGE GROUP PROJECTIONS
NEBRASKA-CENTRAL
1980 AND 1985
(in thousands)

Age Group	1980						1985					
	1970 Census	Natural Increase Projection	Population (after migration)			High Estimate Alternative	Natural Increase Projection	Population (after migration)			High Estimate Alternative	
Adjusted OBERS Baseline			Expected Baseline	Low Estimate Alternative	Adjusted OBERS Baseline			Expected Baseline	Low Estimate Alternative			
0 - 19	114.8	97.7	94.0	95.7	94.8	97.8	93.2	90.7	92.5	91.0	93.7	
20 - 29	36.9	60.9	57.5	59.0	58.2	61.0	60.5	57.9	59.8	58.2	61.0	
30 - 44	47.9	51.4	49.5	50.4	49.9	51.4	65.5	64.1	65.1	64.2	65.8	
45 - 64	68.0	63.7	62.4	63.0	62.7	63.7	60.6	59.6	60.3	59.7	60.8	
65+	46.5	48.9	48.9	48.9	48.9	48.9	49.3	49.3	49.3	49.3	49.3	
Total	314.1	322.6	312.3	317.0	314.6	322.8	329.1	321.7	327.2	322.5	330.6	

Table F-83

POPULATION BY AGE GROUP PROJECTIONS
NEBRASKA-EAST (OMAHA)
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	220.9	202.9	215.1	216.7	215.8	193.0	209.6	210.2	210.0	212.5
20 - 29	82.7	109.5	121.0	122.4	121.7	118.5	135.8	136.5	136.2	138.9
30 - 44	95.5	114.1	120.4	121.2	120.8	131.7	141.4	141.7	141.6	143.1
45 - 64	100.1	112.2	116.4	116.9	116.6	116.6	123.0	123.2	123.1	124.1
65+	52.7	61.5	61.5	61.5	61.5	66.1	66.1	66.1	66.1	66.1
Total	551.9	600.3	634.4	638.7	636.4	625.9	675.8	677.8	677.0	684.7

Table F-24
POPULATION BY AGE GROUP PROJECTIONS
NEBRASKA - OPTIONS -
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980					1985				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	82.5	66.9	63.3	63.9	63.9	63.9	64.2	59.3	59.3	59.3	59.3
20 - 29	22.9	43.4	38.8	38.8	38.8	38.8	44.7	39.6	39.6	39.6	39.6
30 - 44	32.1	32.5	29.9	29.9	29.9	29.9	42.6	39.8	39.8	39.8	39.8
45 - 64	45.3	42.5	40.8	40.8	40.8	40.8	40.5	38.6	38.6	38.6	38.6
65+	31.5	33.1	33.1	33.1	33.1	33.1	33.0	33.0	33.0	33.0	33.0
Total	214.3	220.4	206.5	206.5	206.5	206.5	225.0	210.3	210.3	210.3	210.3

Table F-85

POPULATION BY AGE GROUP PROJECTIONS
NEBRASKA-SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970 Census										
0 - 19	109.2	96.2	101.2	101.2	101.2	95.5	103.1	103.1	103.1	103.1
20 - 29	49.6	59.7	64.3	64.3	64.3	54.1	62.1	62.1	62.1	62.1
30 - 44	46.7	64.4	67.0	67.0	67.0	80.5	84.9	84.9	84.9	84.9
45 - 64	61.9	59.9	61.6	61.6	61.6	58.6	61.5	61.5	61.5	61.5
65+	41.0	43.6	43.6	43.6	43.6	44.3	44.3	44.3	44.3	44.3
Total	308.4	323.8	337.5	337.5	337.5	333.0	356.0	356.0	356.0	356.0

Table F-2E

POPULATION BY AGE GROUP PROJECTIONS
NORTH DAKOTA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980 (after migration)					1985 (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	58.2	51.0	46.3	46.7	46.5	46.8	48.6	42.9	43.4	43.3	43.6
20 - 29	21.3	30.4	26.0	26.4	26.2	26.5	31.0	25.0	25.6	25.4	25.7
30 - 44	21.5	28.7	26.2	26.5	26.4	26.6	35.9	32.6	32.9	32.8	33.2
45 - 64	26.3	26.6	25.0	25.1	25.1	25.2	26.5	24.3	24.5	24.4	24.6
65+	15.7	17.6	17.6	17.6	17.6	17.6	18.2	18.2	18.2	18.2	18.2
Total	143.5	154.3	141.1	142.3	141.7	142.7	160.2	142.8	144.6	144.0	145.0

Table F-29

POPULATION BY AGE GROUP PROJECTIONS
NORTH DAKOTA-NORTHWEST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	53.4	46.9	38.9	39.4	39.1	44.6	35.3	36.1	35.7	37.4
20 - 29	18.5	28.0	20.5	21.0	20.7	28.6	18.8	19.7	19.3	21.0
30 - 44	20.9	25.3	21.2	21.4	21.3	31.1	25.7	26.2	25.9	26.9
45 - 64	25.2	25.4	22.7	22.8	22.7	25.4	21.8	22.1	22.0	22.6
65+	12.3	15.6	15.6	15.6	15.6	16.9	16.9	16.9	16.9	16.9
Total	130.4	141.2	118.9	120.4	119.3	146.6	118.6	121.2	120.0	124.9

Table F-90
POPULATION BY AGE GROUP PROJECTIONS
SOUTH DAKOTA-SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1970 Census	1980 Population (after migration)					1985 Population (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	76.2	52.3	61.6	61.3	61.8	61.9	60.8	59.4	59.8	59.6	59.9
20 - 29	26.0	42.4	41.2	41.4	41.4	41.5	39.4	37.9	38.3	38.2	38.5
30 - 44	29.5	34.9	34.2	34.3	34.3	34.4	47.0	46.1	46.4	46.3	46.5
45 - 64	40.6	38.7	38.2	38.3	38.3	38.4	37.1	36.5	36.7	36.6	36.8
65+	24.7	27.7	27.7	27.7	27.7	27.7	28.5	28.5	28.5	28.5	28.5
Total	197.1	206.6	203.0	203.8	203.6	204.0	212.8	208.5	209.7	209.3	210.2

Table F-91

POPULATION BY AGE GROUP PROJECTIONS
NORTH DAKOTA-SOUTHWEST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	62.9	52.7	50.1	57.4	52.4	49.5	46.2	55.2	50.5	65.2
20 - 29	17.0	33.1	30.7	37.5	32.8	34.1	30.6	40.1	35.1	48.4
30 - 44	23.1	24.0	22.7	26.4	23.8	31.9	30.0	35.2	32.5	39.9
45 - 64	30.1	29.9	29.0	31.5	29.8	28.9	27.6	31.1	29.3	34.2
65+	13.7	18.0	18.0	18.0	18.0	19.7	19.7	19.7	19.7	19.7
Total	146.8	157.7	150.7	171.1	157.1	164.1	154.1	181.4	167.0	205.4

Table F-92
POPULATION BY AGE GROUP PROJECTIONS
SOUTH DAKOTA
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	267.4	227.8	239.3	240.2	239.6	216.1	226.4	227.8	227.6	231.0
20 - 29	84.0	143.0	153.8	154.5	154.0	141.2	152.1	153.5	153.3	156.9
30 - 44	100.5	114.1	120.1	120.5	120.2	151.0	157.0	157.8	157.7	159.7
45 - 64	133.1	132.2	136.1	136.4	136.2	126.9	130.9	131.4	131.3	132.6
65+	80.5	89.5	89.5	89.5	89.5	93.8	93.8	93.8	93.8	93.8
Total	665.5	706.6	738.8	741.1	739.4	729.1	760.1	764.2	763.6	774.1

Table F-93
POPULATION BY AGE GROUP PROJECTIONS
SOUTH DAKOTA-NORTHEAST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	83.3	67.3	69.7	70.6	70.0	64.2	65.8	67.2	67.0	70.5
20 - 29	25.4	46.3	48.6	49.3	48.8	43.3	45.0	46.4	46.2	49.8
30 - 44	30.4	34.3	35.6	36.0	35.7	48.0	49.0	49.7	49.6	51.6
45 - 64	44.7	42.1	42.9	43.2	43.0	39.2	39.8	40.4	40.3	41.6
65+	29.2	31.3	31.3	31.3	31.3	32.3	32.3	32.3	32.3	32.3
Total	213.0	221.3	228.1	230.4	228.7	227.0	231.9	236.0	235.4	245.9

Table F-94

POPULATION BY AGE GROUP PROJECTIONS
SOUTH DAKOTA-SOUTHEAST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	95.8	80.7	82.8	82.8	82.8	77.0	79.9	79.3	79.9	79.9
20 - 29	31.0	51.4	53.4	53.4	53.4	50.5	53.5	53.5	53.5	53.5
30 - 44	36.5	41.9	43.0	43.0	43.0	55.3	57.0	57.0	57.0	57.0
45 - 64	49.6	48.8	49.5	49.5	49.5	46.4	47.5	47.5	47.5	47.5
65+	31.1	33.9	33.9	33.9	33.9	35.4	35.4	35.4	35.4	35.4
Total	244.1	256.7	262.7	262.7	262.7	264.6	273.2	273.2	273.2	273.2

Table F-95
POPULATION BY AGE GROUP PROJECTIONS
SOUTH DAKOTA-WEST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	88.3	79.8	86.8	86.8	86.8	74.9	80.7	80.7	80.7	80.7
20 - 29	27.6	45.3	51.8	51.8	51.8	47.5	53.6	53.6	53.6	53.6
30 - 44	33.5	37.9	41.5	41.5	41.5	47.7	51.1	51.1	51.1	51.1
45 - 64	38.9	41.3	43.7	43.7	43.7	41.3	43.5	43.5	43.5	43.5
65+	20.2	24.3	24.3	24.3	24.3	26.2	26.2	26.2	26.2	26.2
Total	208.5	228.6	248.0	248.0	248.0	237.6	255.0	255.0	255.0	255.0

Table F-36
POPULATION BY AGE GROUP PROJECTIONS
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	Natural Increase Projection	Adjusted OBERS Baseline	Population Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Population Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	132.0	116.5	131.1	149.2	134.9	111.4	125.1	145.7	131.2	159.7
20 - 29	46.3	68.9	82.5	100.0	86.1	69.2	83.5	105.0	89.8	119.7
30 - 44	59.9	63.7	71.2	80.9	73.2	77.5	85.4	97.5	89.0	105.2
45 - 64	67.0	70.8	75.8	82.1	77.1	70.2	75.4	83.4	77.8	88.3
65+	30.2	38.3	38.3	38.3	38.3	42.3	42.3	42.3	42.3	42.3
Total	332.4	358.2	399.0	451.1	409.7	370.7	411.8	473.9	430.0	516.1

Table F-97
POPULATION BY AGE GROUP PROJECTIONS
WYOMING-EAST
1980 AND 1985
(in thousands)

Age Group	1980					1985				
	1970 Census	Natural Increase Projection	Population (after migration)			Natural Increase Projection	Population (after migration)			High Estimate Alternative
			Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	
0 - 19	98.7	87.6	91.2	106.7	98.0	84.2	88.6	102.1	94.6	115.6
20 - 29	36.8	51.4	57.5	69.2	61.1	51.4	56.0	70.1	62.3	84.2
30 - 44	42.9	50.1	53.5	60.0	55.5	60.3	62.8	70.7	66.4	78.6
45 - 64	48.7	52.6	54.8	59.1	56.2	52.8	54.5	59.7	56.8	64.9
65+	22.1	27.7	27.7	27.7	27.7	30.7	30.7	30.7	30.7	30.7
Total	249.2	269.4	287.8	322.7	298.5	279.4	292.5	333.1	310.7	374.3

Table #96

POPULATION BY AGE GROUP PROJECTIONS
 1980 AND 1985
 (in thousands)

Age Group	1970 Census	1980 Population (after migration)					1985 Population (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	18.0	15.2	17.2	17.2	17.2	17.2	14.4	16.9	16.9	16.9	16.9
20 - 29	5.1	9.7	11.6	11.6	11.6	11.6	9.6	12.2	12.2	12.2	12.2
30 - 44	7.6	7.3	8.3	8.3	8.3	8.3	9.4	10.8	10.8	10.8	10.8
45 - 64	10.0	9.9	10.6	10.6	10.6	10.6	9.5	10.5	10.5	10.5	10.5
65+	4.6	5.9	5.9	5.9	5.9	5.9	6.4	6.4	6.4	6.4	6.4
Total	45.3	48.0	53.6	53.6	53.6	53.6	49.3	56.8	56.8	56.8	56.8

Table F-99

POPULATION BY AGE GROUP PROJECTIONS
 WYOMING-SOUTHWEST
 1980 AND 1985
 (in thousands)

Age Group	1970 Census	1980 Population (after migration)					1985 Population (after migration)				
		Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Natural Increase Projection	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
0 - 19	15.3	13.7	19.7	25.9	19.7	26.1	12.9	19.7	26.8	19.7	27.3
20 - 29	4.4	7.8	13.4	19.2	13.4	19.3	8.2	15.3	22.7	15.3	23.3
30 - 44	6.4	6.3	9.4	12.6	9.4	12.7	7.8	11.8	15.9	11.8	16.2
45 - 64	8.3	8.3	10.3	12.5	10.3	12.5	7.9	10.5	13.2	10.5	13.4
65+	3.5	4.7	4.7	4.7	4.7	4.7	5.2	5.2	5.2	5.2	5.2
Total	37.9	40.8	57.5	74.9	57.5	75.3	42.0	62.5	84.0	62.5	85.5

of course, developed by dividing total personal income by population. Tables F-100 through F-123 contain projections of personal income and per capita income by sub-State area, by State and for the Region for 1980 and 1985. In addition, these tables also summarize the estimates of employment, migration, population, and other characteristics.¹

9.0 Summary of Projections

Tables F-124 through F-129 provide summaries of the expected employment, population, net migration, personal income and per capita income characteristics of the Region, States and sub-State areas through 1985. Data are provided for the "adjusted" OBERS baseline projection and the alternative growth paths ("expected baseline", "low estimate alternative", and "high estimate alternative") which take into account major energy and other developments in the Region.²

¹ Totals in these tables may not add due to rounding.

² The projections in each of the sub-State areas generally appear to be "reasonable". Possible exceptions include West Montana and Northeast North Dakota, and perhaps Northwest North Dakota. A comparison of population and migration projections in these areas (Tables F-126 and F-127) with recent population and migration changes (Chapter II, Table II-20) suggests that the population (and related economic activity) projections for these areas may be conservative (i.e., low). The projections for these three areas are based wholly on the adjusted OBERS data base.

Table F-100

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
OLD WEST REGION
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	9,104.3	13,484.1	13,899.4	13,612.1	14,202.6	15,726.1	16,300.2	15,959.0	16,876.5
Personal Income (in millions of 1967 dollars)	11,922.3	17,574.6	18,098.6	17,737.4	18,486.9	20,698.7	21,460.8	21,001.3	22,202.1
Employment ("work force" def., 000's)	1,630.4	1,955.4	2,008.9	1,971.9	2,048.3	2,088.4	2,157.0	2,116.6	2,225.4
Employment ("labor force" def., 000's)	1,503.3	1,804.1	1,852.8	1,818.9	1,888.6	1,926.2	1,988.6	1,951.8	2,051.2
Population (natural increase from 1970, 000's)		4,030.1	4,030.1	4,030.1	4,030.1	4,162.5	4,162.5	4,162.5	4,162.5
Labor Supply (natural increase, 000's)		1,794.2	1,794.2	1,794.2	1,794.2	1,914.8	1,914.8	1,914.8	1,914.8
Job Surplus/(Deficit)--(before migration, 000's)		9.9	58.6	24.7	94.4	11.4	73.8	37.0	136.4
Net Migration from 1970 (000's)		20.7	120.8	50.9	194.9	22.5	145.2	72.7	268.2
Total Population (after migration, 000's)	3,804.9	4,050.8	4,150.9	4,081.0	4,225.0	4,185.0	4,307.7	4,235.2	4,430.7
Income Per Capita (in 1967 dollars)	3,133	4,340	4,360	4,350	4,380	4,950	4,980	4,960	5,010

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-10*

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS

MONTANA
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970								
Earnings (in millions of 1967 dollars)								
Personal Income (in millions of 1967 dollars)	1,661.2	2,334.6	2,327.1	2,362.0	2,452.4			
Employment ("work force" def., 000's)	2,152.4	3,069.4	3,137.9	3,105.2	3,222.9			
Employment ("labor force" def., 000's)	277.5	332.8	339.4	336.3	347.6			
Population (natural increase from 1970, 000's)	264.5	317.3	323.6	320.6	331.3			
Labor Supply (natural increase, 000's)		739.2	739.2	739.2	739.2			
Job Surplus/(Deficit)--(before migration, 000's)		326.5	326.5	326.5	326.5			
Net Migration from 1970 (000's)		-9.2	-3.0	-6.0	4.8			
Total Population (after migration, 000's)	697.0	720.2	733.1	726.9	749.1			
Income Per Capita (in 1967 dollars)	3,088	4,260	4,280	4,270	4,300			

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-102

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
MONTANA-NORTHEAST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	648.4	869.1	869.1	869.1	869.1	994.8	994.8	994.8	994.8
Personal Income (in millions of 1967 dollars)	826.6	1,128.1	1,128.1	1,128.1	1,128.1	1,300.1	1,300.1	1,300.1	1,300.1
Employment ("work force" def., 000's)	103.2	118.1	118.1	118.1	118.1	124.6	124.6	124.6	124.6
Employment ("labor force" def., 000's)	98.4*	112.6	112.6	112.6	112.6	118.9	118.9	118.9	118.9
Population (natural increase from 1970, 000's)		260.7	260.7	260.7	260.7	269.8	269.8	269.8	269.8
Labor Supply (natural increase, 000's)		115.1	115.1	115.1	115.1	123.7	123.7	123.7	123.7
Job Surplus/(Deficit)--(before migration, 000's)		-2.5	-2.5	-2.5	-2.5	-4.8	-4.8	-4.8	-4.8
Net Migration from 1970 (000's)		-5.1	-5.1	-5.1	-5.1	-9.4	-9.4	-9.4	-9.4
Total Population (after migration, 000's)	** 245.3	255.6	255.6	255.6	255.6	260.4	260.4	260.4	260.4
Income Per Capita (in 1967 dollars)	3,370	4,410	4,410	4,410	4,410	4,990	4,990	4,990	4,990

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-103

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
 NORTH CAROLINA-SOUTHEAST
 1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	516.5	741.5	734.0	765.9	859.3	852.4	927.6	899.9	1,074.7
Personal Income (in millions of 1967 dollars)	668.2	966.0	1,034.5	1,001.3	1,119.5	1,115.3	1,213.7	1,177.4	1,356.2
Employment ("work force" def., 000's)	87.3	108.2	114.8	111.7	123.0	114.8	123.4	120.2	140.5
Employment ("labor force" def., 000's)	83.2*	103.2	109.5	106.5	117.2	109.4	117.6	114.6	133.9
Population (natural increase from 1970, 000's)		230.0	230.0	230.0	230.0	238.2	238.2	238.2	238.2
Labor Supply (natural increase, 000's)		102.2	102.2	102.2	102.2	109.0	109.0	109.0	109.0
Job Surplus/(Deficit)--(before migration, 000's)		0.9	7.2	4.2	15.0	0.4	8.6	5.6	24.9
Net Migration from 1970 (000's)		2.0	14.9	8.7	30.9	0.8	16.9	11.0	48.9
Total Population (after migration, 000's)	**	230.0	244.9	238.7	260.9	239.0	255.1	249.2	287.1
Income Per Capita (in 1967 dollars)	3,095	4,170	4,220	4,200	4,290	4,670	4,760	4,720	4,900

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-104

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
MONTANA-WEST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	496.3	724.0	724.0	724.0	724.0	839.5	839.5	839.5	839.5
Personal Income (in millions of 1967 dollars)	657.7	975.3	975.3	975.3	975.3	1,134.0	1,134.0	1,134.0	1,134.0
Employment ("work force" def., 000's)	87.0	106.5	106.5	106.5	106.5	113.9	106.5	106.5	106.5
Employment ("labor force" def., 000's)	83.0*	101.5	101.5	101.5	101.5	108.7	108.7	108.7	108.7
Population (natural increase from 1970, 000's)		248.5	248.5	248.5	248.5	256.1	256.1	256.1	256.1
Labor Supply (natural increase, 000's)		109.2	109.2	109.2	109.2	116.7	116.7	116.7	116.7
Job Surplus/(Deficit)--(before migration, 000's)		-7.7	-7.7	-7.7	-7.7	-8.0	-8.0	-8.0	-8.0
Net Migration from 1970 (000's)		-15.9	-15.9	-15.9	-15.9	-15.7	-15.7	-15.7	-15.7
Total Population (after migration, 000's)	** 235.8	232.6	232.6	232.6	232.6	240.4	240.4	240.4	240.4
Income Per Capita (in 1967 dollars)	2,789	4,190	4,190	4,190	4,190	4,720	4,720	4,720	4,720

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-105

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NEBRASKA
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970								
Earnings (in millions of 1967 dollars)	3,856.4	5,600.0	5,640.2	5,619.7	6,624.0	6,660.7	6,633.9	6,710.4
Personal Income (in millions of 1967 dollars)	50,626.0	7,331.2	7,383.6	7,356.9	8,699.6	8,750.3	8,712.5	8,813.2
Employment ("work force" def., 000's)	666.4	782.7	787.5	785.0	841.1	845.3	842.2	850.9
Employment ("labor force" def., 000's)	613.4*	720.8	725.2	722.9	774.2	778.0	775.2	783.2
Population (natural increase from 1970, 000's)		1,566.0	1,566.0	1,566.0	1,614.9	1,614.9	1,614.9	1,614.9
Labor Supply (natural increase, 000's)		714.5	714.5	714.5	756.7	756.7	756.7	756.7
Job Surplus/(Deficit)--(before migration, 000's)		6.3	10.7	8.4	17.5	21.3	18.5	26.5
Net Migration from 1970 (000's)		13.1	22.0	17.3	34.4	41.9	36.4	52.2
Total Population (after migration, 000's)	** 1,489.9	1,579.1	1,588.0	1,583.3	1,549.3	1,656.8	1,651.3	1,667.1
Income Per Capita (in 1967 dollars)	3,398	4,640	4,650	4,650	5,270	5,280	5,280	5,290

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-106

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NEBRASKA-CENTRAL
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	755.0	1,013.1	1,032.4	1,022.6	1,056.1	1,177.3	1,203.1	1,181.3	1,217.8
Personal Income (in millions of 1967 dollars)	1,043.1	1,461.3	1,489.1	1,475.0	1,523.3	1,723.7	1,761.5	1,729.6	1,783.0
Employment ("work force" def., 000's)	135.8	152.3	154.8	153.5	157.9	161.4	164.5	161.9	166.3
Employment ("labor force" def., 000's)	125.0	140.2	142.5	141.3	145.3	148.5	151.3	148.9	153.0
Population (natural increase from 1970, 000's)		322.6	322.6	322.6	322.6	329.2	329.2	329.2	329.2
Labor Supply (natural increase, 000's)		145.2	145.2	145.2	145.2	152.3	152.3	152.3	152.3
Job Surplus/(Deficit)--(before migration, 000's)		-5.0	-2.7	-3.9	0.1	-3.8	-1.0	-3.4	0.7
Net Migration from 1970 (000's)		-10.3	-5.6	-8.0	0.2	-7.5	-2.0	-6.7	1.4
Total Population (after migration, 000's)	** 313.7	312.3	317.0	314.6	322.8	321.7	327.2	322.5	330.6
Income Per Capita (in 1967 dollars)	3,324	4,680	4,700	4,690	4,720	5,360	5,380	5,360	5,390

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-107

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NEBRASKA-EAST (OMAHA)
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	1,693.3	2,556.4	2,577.3	2,566.6	2,580.7	3,072.5	3,083.4	3,078.4	3,116.4
Personal Income (in millions of 1967 dollars)	2,069.9	3,009.3	3,033.9	3,021.3	3,037.9	3,636.3	3,649.2	3,643.3	3,690.6
Employment ("work force" def., 000's)	260.7	319.8	322.1	320.9	322.5	349.2	350.3	349.8	354.1
Employment ("labor force" def., 000's)	240.0	294.6	296.7	295.6	297.0	321.4	322.4	322.0	325.9
Population (natural increase from 1970, 000's)		600.3	600.3	600.3	600.3	625.9	625.9	625.9	625.9
Labor Supply (natural increase, 000's)		278.1	278.1	278.1	278.1	296.0	296.0	296.0	296.0
Job Surplus/(Deficit)--(before migration, 000's)		16.5	18.6	17.5	18.9	25.4	26.4	26.0	29.9
Net Migration from 1970 (000's)		34.1	38.3	36.0	39.1	49.9	51.9	51.1	58.8
Total Population (after migration, 000's)	** 557.2	634.4	638.7	636.4	639.4	675.8	677.8	677.0	684.7
Income Per Capita (in 1967 dollars)	3,715	4,740	4,750	4,750	4,750	5,380	5,380	5,380	5,390

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-108

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NEBRASKA-NORTHEAST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	435.4	619.2	619.2	619.2	619.2	712.7	712.7	712.7	712.7
Personal Income (in millions of 1967 dollars)	609.6	906.5	906.5	906.5	906.5	1,063.2	1,063.2	1,063.2	1,063.2
Employment ("work force" def., 000's)	88.2	100.0	100.0	100.0	100.0	105.1	105.1	105.1	105.1
Employment ("labor force" def., 000's)	81.2	92.1	92.1	92.1	92.1	96.8	96.8	96.8	96.8
Population (natural increase from 1970, 000's)		220.3	220.3	220.3	220.3	225.0	225.0	225.0	225.0
Labor Supply (natural increase, 000's)		98.8	98.8	98.8	98.8	104.3	104.3	104.3	104.3
Job Surplus/(Deficit)--(before migration, 000's)		-6.7	-6.7	-6.7	-6.7	-7.5	-7.5	-7.5	-7.5
Net Migration from 1970 (000's)		-13.8	-13.8	-13.8	-13.8	-14.7	-14.7	-14.7	-14.7
Total Population (after migration, 000's)	** 214.9	206.5	206.5	206.5	206.5	210.3	210.3	210.3	210.3
Income Per Capita (in 1967 dollars)	2,837	4,390	4,390	4,390	4,390	5,060	5,060	5,060	5,060

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-109

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NEBRASKA-SOUTHERS
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	777.7	1,130.3	1,130.3	1,130.3	1,130.3	1,337.9	1,337.9	1,337.9	1,337.9
Personal Income (in millions of 1967 dollars)	1,065.8	1,554.7	1,554.7	1,554.7	1,554.7	1,848.6	1,848.6	1,848.6	1,848.6
Employment ("work force" def., 000's)	140.9	169.7	169.7	169.7	169.7	182.6	182.6	182.6	182.6
Employment ("labor force" def., 000's)	129.7*	156.2	156.2	156.2	156.2	168.1	168.1	168.1	168.1
Population (natural increase from 1970, 000's)		323.7	323.7	323.7	323.7	333.0	333.0	333.0	333.0
Labor Supply (natural increase, 000's)		149.5	149.5	149.5	149.5	156.4	156.4	156.4	156.4
Job Surplus/(Deficit)--(before migration, 000's)		6.7	6.7	6.7	6.7	11.7	11.7	11.7	11.7
Net Migration from 1970 (000's)		13.8	13.8	13.8	13.8	23.0	23.0	23.0	23.0
Total Population (after migration, 000's)	** 309.2	337.5	337.5	337.5	337.5	356.0	356.0	356.0	356.0
Income Per Capita (in 1967 dollars)	3,447	4,610	4,610	4,610	4,610	5,190	5,190	5,190	5,190

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-110

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NEBRASKA--WEST (PANHANDLE)
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	195.0	281.0	281.0	281.0	323.6	323.6	323.6	323.6
Personal Income (in millions of 1967 dollars)	274.2	399.4	399.4	399.4	427.8	427.8	427.8	427.8
Employment ("work force" def., 000's)	40.8	40.9	40.9	40.9	42.8	42.8	42.8	42.8
Employment ("labor force" def., 000's)	37.5*	37.7	37.7	37.7	39.4	39.4	39.4	39.4
Population (natural increase from 1970, 000's)		99.1	99.1	99.1	101.8	101.8	101.8	101.8
Labor Supply (natural increase, 000's)		42.9	42.9	42.9	47.7	47.7	47.7	47.7
Job Surplus/(Deficit)--(before migration, 000's)		-5.2	-5.2	-5.2	-8.3	-8.3	-8.3	-8.3
Net Migration from 1970 (000's)		-10.7	-10.7	-10.7	-16.3	-16.3	-16.3	-16.3
Total Population (after migration, 000's)	** 94.9	88.4	88.4	88.4	85.5	85.5	85.5	85.5
Income Per Capita (in 1967 dollars)	2,889	4,520	4,520	4,520	5,000	5,000	5,000	5,000

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-112

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NORTH DAKOTA-NORTHEAST
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970								
315.6	458.3	462.7	460.9	465.1	525.4	532.2	529.8	536.5
412.1	593.9	599.7	597.3	602.1	686.0	694.9	691.8	700.5
60.9	68.8	69.4	69.1	69.7	73.0	74.0	73.7	74.3
53.0*	59.8	60.4	60.1	60.6	63.5	64.4	64.1	64.6
	154.3	154.3	154.3	154.3	160.1	160.1	160.1	160.1
	66.2	66.2	66.2	66.2	72.3	72.3	72.3	72.3
	-6.4	-5.8	-6.1	-5.6	-8.8	-7.9	-8.2	-7.7
	-13.2	-12.0	-12.6	-11.6	-17.3	-15.5	-16.1	-15.1
** 143.6	141.1	142.3	141.7	142.7	142.8	144.5	144.0	145.0
2,270	4,210	4,210	4,210	4,220	4,800	4,810	4,800	4,830

Earnings (in millions of 1967 dollars)

Personal Income (in millions of 1967 dollars)

Employment ("work force" def., 000's)

Employment ("labor force" def., 000's)

Population (natural increase from 1970, 000's)

Labor Supply (natural increase, 000's)

Job Surplus/(Deficit)--(before migration, 000's)

Net Migration from 1970 (000's)

Total Population (after migration, 000's)

Income Per Capita (in 1967 dollars)

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-113

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NORTH DAKOTA-NORTHEAST
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970								
259.9	344.2	350.1	346.6	351.7	385.1	395.2	391.3	411.4
341.8	438.8	446.3	441.9	448.4	490.1	503.0	498.0	523.6
54.8	57.2	58.0	57.5	58.3	59.3	60.8	60.1	63.0
47.7*	49.8	50.5	50.0	50.7	51.6	52.9	52.3	54.8
	141.2	141.2	141.2	141.2	146.7	146.7	146.7	146.7
	60.6	60.6	60.6	60.6	65.9	65.9	65.9	65.9
	-10.8	-10.1	-10.6	-9.9	-14.3	-13.0	-13.6	-11.1
	-22.3	-20.8	-21.9	-20.4	-28.1	-25.5	-26.7	-21.8
**	118.9	120.4	119.3	120.8	118.5	121.2	120.0	124.9
2,610	3,690	3,710	3,700	3,710	4,130	4,150	4,150	4,190

Earnings (in millions of 1967 dollars)

Personal Income (in millions of 1967 dollars)

Employment ("work force" def., 000's)

Employment ("labor force" def., 000's)

Population (natural increase from 1970, 000's)

Labor Supply (natural increase, 000's)

Job Surplus/(Deficit)--(before migration, 000's)

Net Migration from 1970 (000's)

Total Population (after migration, 000's)

Income Per Capita (in 1967 dollars)

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-114
SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NORTH DAKOTA-SOUTHEAST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	445.4	675.4	678.6	678.3	679.9	771.6	776.9	775.4	779.1
Personal Income (in millions of 1967 dollars)	595.8	881.0	885.2	884.8	886.9	1,014.8	1,021.8	1,019.8	1,024.6
Employment ("work force" def., 000's)	84.3	100.2	100.7	100.6	100.8	106.8	107.5	107.3	107.8
Employment ("labor force" def., 000's)	73.3*	87.2	87.6	87.5	87.7	92.9	93.5	93.3	93.8
Population (natural increase from 1970, 000's)		206.7	206.7	206.7	206.7	212.8	212.8	212.8	212.8
Labor Supply (natural increase, 000's)		89.0	89.0	89.0	89.0	95.1	95.1	95.1	95.1
Job Surplus/(Deficit)--(before migration, 000's)		-1.8	-1.4	-1.5	-1.3	-2.2	-1.6	-1.8	-1.3
Net Migration from 1970 (000's)		-3.7	-2.9	-3.1	-2.7	-4.3	-3.1	-3.5	-2.6
Total Population (after migration, 000's)	** 197.1	203.0	203.8	203.6	204.0	208.5	209.7	209.3	210.2
Income Per Capita (in 1967 dollars)	3,023	4,340	4,340	4,340	4,350	4,870	4,870	4,870	4,870

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-115
SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
NORTH DAKOTA-SOUTHWEST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	288.4	481.6	563.2	507.3	632.5	552.2	677.5	611.3	787.7
Personal Income (in millions of 1967 dollars)	379.5	619.9	725.7	652.9	814.0	715.2	877.8	792.0	1,020.6
Employment ("work force" def., 000's)	57.2	72.8	84.1	76.3	93.6	72.0	93.9	85.5	108.0
Employment ("labor force" def., 000's)	49.7*	63.3	73.2	66.4	81.4	67.8	81.7	74.4	93.9
Population (natural increase from 1970, 000's)		157.9	157.9	157.9	157.9	164.1	164.1	164.1	164.1
Labor Supply (natural increase, 000's)		66.8	66.8	66.8	66.8	72.9	72.9	72.9	72.9
Job Surplus/(Deficit)--(before migration, 000's)		-3.5	6.4	-0.4	14.6	-5.1	8.8	1.5	21.0
Net Migration from 1970 (000's)		-7.2	13.2	-0.8	30.1	-10.0	17.3	2.9	41.3
Total Population (after migration, 000's)	** 146.9	150.7	171.1	157.1	188.0	154.1	181.4	167.0	205.4
Income Per Capita (in 1967 dollars)	2,523	4,110	4,240	4,160	4,330	4,650	4,940	4,740	4,970

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-116

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
SOUTH DAKOTA
1980 AND 1985

1970	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1,396.2	2,199.9	2,208.8	2,202.4	2,239.3	2,564.1	2,586.3	2,579.0	2,621.8
1,851.3	2,938.3	2,950.3	2,941.7	2,991.3	3,433.5	3,463.6	3,453.7	3,511.6
262.1	344.8	346.0	345.1	350.3	367.4	369.7	369.4	375.0
266.5	325.7	326.8	326.0	330.9	347.0	349.1	348.8	354.1
	706.6	706.6	706.6	706.6	729.1	729.1	729.1	729.1
	310.1	310.1	310.1	310.1	331.2	331.2	331.2	331.2
	15.6	16.7	15.9	20.8	15.8	17.9	17.6	22.9
	32.2	34.5	32.8	42.9	31.0	35.1	34.5	45.0
** 650.0	738.8	741.1	739.4	749.5	760.1	764.2	763.6	774.1
2,780	3,920	3,980	3,980	3,990	4,520	4,530	4,520	4,540

Earnings (in millions of 1967 dollars)

Personal Income (in millions of 1967 dollars)

Employment ("work force" def., 000's)

Employment ("labor force" def., 000's)

Population (natural increase from 1970, 000's)

Labor Supply (natural increase, 000's)

Job Surplus/(Deficit)--(before migration, 000's)

Net Migration from 1970 (000's)

Total Population (after migration, 000's)

Income Per Capita (in 1967 dollars)

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-117

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
SOUTH DAKOTA-NORTHEAST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	422.7	639.0	647.9	641.5	672.6	729.6	751.6	744.5	787.3
Personal Income (in millions of 1967 dollars)	572.8	858.4	870.4	861.8	903.9	986.4	1,016.5	1,006.6	1,064.5
Employment ("work force" def., 000's)	90.4	106.9	108.1	107.2	111.7	111.7	114.0	113.7	119.3
Employment ("labor force" def., 000's)	85.4*	101.0	102.1	101.3	105.5	105.6	107.7	107.4	112.7
Population (natural increase from 1970, 000's)		221.3	221.3	221.3	221.3	227.0	227.0	227.0	227.0
Labor Supply (natural increase, 000's)		97.7	97.7	97.7	97.7	103.1	103.1	103.1	103.1
Job Surplus/(Deficit)--(before migration, 000's)		3.3	4.4	3.6	7.8	2.5	4.6	4.3	9.6
Net Migration from 1970 (000's)		6.8	9.1	7.4	16.1	4.9	9.0	8.4	18.9
Total Population (after migration, 000's)	** 213.2	228.1	230.4	228.7	237.4	231.9	236.0	235.4	245.9
Income Per Capita (in 1967 dollars)	2,687	3,760	3,780	3,770	3,810	4,250	4,310	4,280	4,330

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-118

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
SOUTH DAKOTA-SOUTHEAST
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970								
Earnings (in millions of 1967 dollars)	533.2	782.5	782.5	782.5	920.0	920.0	920.0	920.0
Personal Income (in millions of 1967 dollars)	703.2	1,033.0	1,033.0	1,033.0	1,217.6	1,217.6	1,217.6	1,217.6
Employment ("work force" def., 000's)	104.8	122.5	122.5	122.5	131.8	131.8	131.8	131.8
Employment ("labor force" def., 000's)	99.0*	115.7	115.7	115.7	124.4	124.4	124.4	124.4
Population (natural increase from 1970, 000's)		256.7	256.7	256.7	264.6	264.6	264.6	264.6
Labor Supply (natural increase, 000's)		112.8	112.8	112.8	120.0	120.0	120.0	120.0
Job Surplus/(Deficit)--(before migration, 000's)		2.9	2.9	2.9	4.4	4.4	4.4	4.4
Net Migration from 1970 (000's)		6.0	6.0	6.0	8.6	8.6	8.6	8.6
Total Population (after migration, 000's)	** 244.0	262.7	262.7	262.7	273.2	273.2	273.2	273.2
Income Per Capita (in 1967 dollars)	2,882	3,930	3,930	3,930	4,460	4,460	4,460	4,460

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-119

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
SOUTH DAKOTA-WEST
1980 AND 1985

	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
1970								
Earnings (in millions of 1967 dollars)	440.3	778.4	778.4	784.0				
Personal Income (in millions of 1967 dollars)	575.7	1,046.9	1,046.9	1,054.4	1,223.5	1,229.5	1,229.5	1,229.5
Employment ("work force" def., 000's)	86.9	115.4	115.4	116.1	123.9	123.9	123.9	123.9
Employment ("labor force" def., 000's)	82.1*	109.0	109.0	109.7	117.0	117.0	117.0	117.0
Population (natural increase from 1970, 000's)		228.6	228.6	228.6	237.5	237.5	237.5	237.5
Labor Supply (natural increase, 000's)		99.6	99.6	99.6	108.1	108.1	108.1	108.1
Job Surplus/(Deficit)--(before migration, 000's)		9.4	9.4	10.1	8.9	8.9	8.9	8.9
Net Migration from 1970 (000's)		19.4	19.4	20.8	17.5	17.5	17.5	17.5
Total Population (after migration, 000's)	** 208.8	248.0	248.0	249.4	255.0	255.0	255.0	255.0
Income Per Capita (in 1967 dollars)	2,757	4,220	4,220	4,230	4,820	4,820	4,820	4,820

Earnings (in millions of 1967 dollars)

Personal Income (in millions of 1967 dollars)

Employment ("work force" def., 000's)

Employment ("labor force" def., 000's)

Population (natural increase from 1970, 000's)

Labor Supply (natural increase, 000's)

Job Surplus/(Deficit)--(before migration, 000's)

Net Migration from 1970 (000's)

Total Population (after migration, 000's)

Income Per Capita (in 1967 dollars)

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-120

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
WYOMING
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	881.2	1,390.0	1,608.1	1,434.9	1,714.4	1,616.4	1,914.5	1,704.1	2,120.6
Personal Income (in millions of 1967 dollars)	1,126.3	1,702.1	1,970.1	1,756.7	2,099.5	2,109.1	2,501.6	2,222.0	2,767.7
Employment ("work force" def., 000's)	147.2	196.2	223.7	201.8	236.9	209.3	243.7	219.4	267.2
Employment ("labor force" def., 000's)	135.2*	180.2	205.5	185.4	217.7	192.2	223.8	201.5	245.3
Population (natural increase from 1970, 000's)		358.2	358.2	358.2	358.2	370.7	370.7	370.7	370.7
Labor Supply (natural increase, 000's)		160.5	160.5	160.5	160.5	171.3	171.3	171.3	171.3
Job Surplus/(Deficit)--(before migration, 000's)		19.7	45.0	24.9	57.0	20.9	52.5	30.2	74.0
Net Migration from 1970 (000's)		40.8	92.9	51.5	118.1	41.1	103.2	59.3	145.4
Total Population (after migration, 000's)	** 334.0	399.0	451.1	409.7	476.3	411.8	473.9	430.0	516.1
Income Per Capita (in 1967 dollars)	3,370	4,270	4,370	4,290	4,410	5,120	5,280	5,170	5,360

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-121

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
WYOMING-EAST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	650.5	1,008.4	1,155.1	1,053.3	1,259.4	1,149.6	1,345.1	1,237.3	1,543.2
Personal Income (in millions of 1967 dollars)	835.2	1,226.5	1,404.9	1,231.1	1,531.7	1,450.2	1,731.9	1,593.1	1,927.0
Employment ("work force" def., 000's)	108.7	142.0	160.4	147.6	173.4	148.5	171.1	158.7	193.7
Employment ("labor force" def., 000's)	99.8*	130.4	147.3	135.6	159.3	136.5	157.2	145.8	177.9
Population (natural increase from 1970, 000's)		269.4	269.4	269.4	269.4	279.3	279.3	279.3	279.3
Labor Supply (natural increase, 000's)		121.5	121.5	121.5	121.5	129.8	129.8	129.8	129.8
Job Surplus/(Deficit)--(before migration, 000's)		8.9	25.8	14.1	37.8	6.7	27.4	16.0	48.1
Net Migration from 1970 (000's)		18.4	53.3	29.1	78.1	13.2	53.8	31.4	94.5
Total Population (after migration, 000's)	** 250.4	287.8	322.7	298.5	347.4	292.5	333.1	310.7	374.3
Income Per Capita (in 1967 dollars)	3,335	4,260	4,350	4,290	4,410	5,060	5,200	5,130	5,310

Earnings (in millions of 1967 dollars)

Personal Income (in millions of 1967 dollars)

Employment ("work force" def., 000's)

Employment ("labor force" def., 000's)

Population (natural increase from 1970, 000's)

Labor Supply (natural increase, 000's)

Job Surplus/(Deficit)--(before migration, 000's)

Net Migration from 1970 (000's)

Total Population (after migration, 000's)

Income Per Capita (in 1967 dollars)

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-122

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
 WYOMING-NORTHWEST
 1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	122.5	166.9	166.9	166.9	166.9	200.3	200.3	200.3	200.3
Personal Income (in millions of 1967 dollars)	158.2	206.0	206.0	206.0	206.0	263.1	263.1	263.1	263.1
Employment ("work force" def., 000's)	21.3	26.0	26.0	26.0	26.0	28.7	28.7	28.7	28.7
Employment ("labor force" def., 000's)	19.6*	23.9	23.9	23.9	23.9	26.3	26.3	26.3	26.3
Population (natural increase from 1970, 000's)		48.0	48.0	48.0	48.0	49.3	49.3	49.3	49.3
Labor Supply (natural increase, 000's)		21.2	21.2	21.2	21.2	22.5	22.5	22.5	22.5
Job Surplus/(Deficit)--(before migration, 000's)		2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8
Net Migration from 1970 (000's)		5.6	5.6	5.6	5.6	7.5	7.5	7.5	7.5
Total Population (after migration, 000's)	** 45.5	53.6	53.6	53.6	53.6	56.8	56.8	56.8	56.8
Income Per Capita (in 1967 dollars)	3,477	3,840	3,840	3,840	3,840	4,630	4,630	4,630	4,630

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-123

SELECTED EMPLOYMENT, INCOME AND POPULATION PROJECTIONS
WYOMING-SOUTHWEST
1980 AND 1985

	1970	1980				1985			
		Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Earnings (in millions of 1967 dollars)	108.2	214.7	286.1	214.7	228.1	266.5	369.1	266.5	377.1
Personal Income (in millions of 1967 dollars)	132.9	269.6	359.2	269.6	361.8	365.8	506.6	365.8	517.6
Employment ("work force" def., 000's)	17.2	28.2	37.3	28.2	37.5	32.0	43.9	32.0	44.8
Employment ("labor force" def., 000's)	15.8*	25.9	34.3	25.9	34.5	29.4	40.3	29.4	41.1
Population (natural increase from 1970, 000's)		40.8	40.8	40.8	40.8	42.1	42.1	42.1	42.1
Labor Supply (natural increase, 000's)		17.8	17.8	17.8	17.8	19.0	19.0	19.0	19.0
Job Surplus/(Deficit)--(before migration, 000's)		8.1	16.5	8.1	16.7	10.4	21.3	10.4	22.1
Net Migration from 1970 (000's)		16.7	34.1	16.7	34.5	20.4	41.9	20.4	43.4
Total Population (after migration, 000's)	** 38.1	57.5	74.9	57.5	75.3	62.5	84.0	62.5	85.5
Income Per Capita (in 1967 dollars)	3,488	4,690	4,800	4,690	4,810	5,850	5,030	5,850	6,050

* Differs from the Census estimate because this estimate reflects (1) average annual employment, and (2) revisions to agriculture employment.

** Bureau of Census, estimate for July 1, 1970.

Table F-124

SUMMARY OF EMPLOYMENT
OLD WEST REGION
1980 AND 1985
("work force" definition, in thousands)

Area	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Old West Region	1,955.4	2,008.9	1,971.9	2,048.3	2,088.4	2,157.0	2,116.6	2,225.4
Montana								
Northeast	332.8	339.4	336.3	347.6	353.3	361.9	358.7	379.0
Southeast	118.1	118.1	118.1	118.1	124.6	124.6	124.6	124.6
West	108.2	114.8	111.7	123.0	114.8	123.4	120.2	140.5
	106.5	106.5	106.5	106.5	113.9	113.9	113.9	113.9
Nebraska								
Central	782.7	787.5	785.0	791.0	841.1	845.3	842.2	850.9
East (Omaha)	152.3	154.8	153.5	157.9	161.4	164.5	161.9	166.3
Northeast	319.8	322.1	320.9	322.5	349.2	353.3	349.8	354.1
Southeast	100.0	100.0	100.0	100.0	105.1	105.1	105.1	105.1
West (Panhandle)	169.7	169.7	169.7	169.7	182.6	182.6	182.6	182.6
	40.9	40.9	40.9	40.9	42.8	42.8	42.8	42.8
North Dakota								
Northeast	299.1	312.2	303.5	322.4	317.1	336.2	326.6	353.1
Northwest	68.8	69.4	69.1	69.7	73.0	74.0	73.7	74.3
Southeast	57.2	58.0	57.5	58.3	59.3	60.8	60.1	63.0
Southwest	100.2	100.7	100.6	100.8	106.8	107.5	107.3	107.3
	72.8	84.1	76.3	93.6	78.0	93.9	85.5	103.0
South Dakota								
Northeast	344.8	346.0	345.1	350.3	367.4	369.7	369.4	375.0
Southeast	106.9	108.1	107.2	111.7	111.7	114.0	113.7	119.3
West	122.5	122.5	122.5	122.5	131.8	131.8	131.8	131.8
	115.4	115.4	115.4	116.1	123.9	123.9	123.9	123.9
Wyoming								
East	196.2	223.7	201.8	236.9	209.3	243.7	219.4	267.2
Northwest	142.0	160.4	147.6	173.4	148.6	171.1	158.7	193.7
Southwest	26.0	26.0	26.0	26.0	28.7	28.7	28.7	28.7
	28.2	37.3	28.2	37.5	32.0	43.9	32.0	44.8

Table F-125

SUMMARY OF EMPLOYMENT
OLD WEST REGION
1980 AND 1985

("labor force" definition, in thousands)

Area	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Old West Region	1,804.1	1,852.8	1,818.9	1,888.6	1,926.2	1,988.2	1,951.8	2,051.2
Montana								
Northeast	317.3	323.6	320.6	331.3	337.0	345.2	342.2	361.5
Southeast	112.6	112.6	112.6	112.6	118.9	118.9	118.9	118.9
West	103.2	109.5	106.5	117.2	109.4	117.6	114.6	133.9
	101.5	101.5	101.5	101.5	108.7	108.7	108.7	108.7
Nebraska								
Central	720.5	725.2	722.9	728.3	774.2	778.0	775.2	783.2
East (Omaha)	140.2	142.5	141.3	145.3	148.5	151.3	148.9	153.0
Northeast	294.6	296.7	295.6	297.0	321.4	322.4	322.0	325.9
Southeast	92.1	92.1	92.1	92.1	96.8	96.8	96.8	96.8
West (Panhandle)	156.2	156.2	156.2	156.2	168.1	168.1	168.1	168.1
	37.7	37.7	37.7	37.7	39.4	39.4	39.4	39.4
North Dakota								
Northeast	260.1	271.7	264.0	280.4	275.8	292.5	284.1	307.1
Northwest	59.8	60.4	60.1	60.6	63.6	64.4	64.1	64.6
Southeast	49.8	50.5	50.0	50.7	51.6	52.9	52.3	54.8
Southwest	87.2	87.6	87.5	87.7	92.9	93.5	93.3	93.8
	63.3	73.2	66.4	81.4	67.8	81.7	74.4	93.9
South Dakota								
Northeast	325.7	326.8	326.0	330.9	347.0	349.1	348.8	354.1
Southeast	101.0	102.1	101.3	105.5	105.6	107.7	107.4	112.7
West	115.7	115.7	115.7	115.7	124.4	124.4	124.4	124.4
	109.0	109.0	109.0	109.7	117.0	117.0	117.0	117.0
Wyoming								
East	180.2	205.5	185.4	217.7	192.2	223.8	201.5	245.3
Northwest	130.4	147.3	135.6	159.3	136.5	157.2	145.8	177.9
Southwest	23.9	23.9	23.9	23.9	26.3	26.3	26.3	26.3
	25.9	34.3	25.9	34.5	29.4	40.3	29.4	41.1

Table F-126

SUMMARY OF TOTAL POPULATION
OLD WEST REGION
1980 AND 1985
(in thousands)

Area	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Old West Region	4,050.8	4,150.9	4,081.0	4,225.0	4,185.0	4,307.7	4,235.2	4,430.7
Montana								
Northeast	720.2	733.1	726.9	749.1	739.8	755.9	750.0	787.9
Southeast	255.6	255.6	255.6	255.6	260.4	260.4	260.4	260.4
West	232.0	244.9	238.7	260.9	239.0	255.1	249.2	287.1
West	232.6	232.6	232.6	232.6	240.4	240.4	240.4	240.4
Nebraska								
Central	1,579.1	1,588.0	1,583.3	1,594.6	1,649.3	1,656.8	1,651.3	1,667.1
East (Omaha)	312.3	317.0	314.6	322.8	321.7	327.2	322.5	330.6
Northeast	634.4	638.7	636.4	639.4	675.8	677.8	677.0	684.7
Southeast	206.5	206.5	206.5	206.5	210.3	210.3	210.3	210.3
West (Panhandle)	337.5	337.5	337.5	337.5	356.0	356.0	356.0	356.0
West	88.4	88.4	88.4	88.4	85.5	85.5	85.5	85.5
North Dakota								
Northeast	613.7	637.6	621.7	655.5	624.0	656.9	640.3	695.5
Northwest	141.1	142.3	141.7	142.7	142.8	144.6	144.0	145.0
Southeast	118.9	120.4	119.3	120.8	118.6	121.2	120.0	124.9
Southwest	203.0	203.8	203.6	204.0	208.5	209.7	209.3	210.2
Southwest	150.7	171.1	157.1	188.0	154.1	181.4	167.0	205.4
South Dakota								
Northeast	738.8	741.1	739.4	749.5	760.1	764.2	763.6	774.1
Southeast	228.1	230.4	228.7	237.4	231.9	236.0	235.4	245.9
West	262.7	262.7	262.7	262.7	273.2	273.2	273.2	273.2
West	248.0	248.0	248.0	249.4	255.0	255.0	255.0	255.0
Wyoming								
East	399.0	451.1	409.7	476.3	411.8	473.9	430.0	516.1
Northwest	287.8	322.7	298.5	347.4	292.5	333.1	310.7	374.3
Southwest	53.6	53.6	53.6	53.6	56.8	56.8	56.8	56.8
Southwest	57.5	74.9	57.5	75.3	62.5	84.0	62.5	85.5

Table F-127

SUMMARY OF NET MIGRATION FROM 1970
OLD WEST REGION
1980 AND 1985
(in thousands)

Area	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Old West Region	20.7	120.8	50.9	194.9	22.5	145.2	72.7	268.2
Montana								
Northeast	-19.0	-6.1	-12.3	9.9	-24.3	-8.2	-14.1	23.8
Southeast	-5.1	-5.1	-5.1	-5.1	-9.4	-9.4	-9.4	-9.4
West	2.0	14.9	8.7	30.9	0.8	16.9	11.0	48.9
	-15.9	-15.9	-15.9	-15.9	-15.7	-15.7	-15.7	-15.7
Nebraska								
Central	13.1	22.0	17.3	28.6	34.4	41.9	36.4	52.2
East (Omaha)	-10.3	-5.6	-8.0	0.2	-7.5	-2.0	-6.7	1.7
Northeast	34.1	38.3	36.0	39.1	49.9	51.9	51.1	58.3
Southeast	-13.8	-13.8	-13.8	-13.8	-14.7	-14.7	-14.7	-14.7
West (Panhandle)	13.8	13.8	13.8	13.8	23.0	23.0	23.0	23.0
	-10.7	-10.7	-10.7	-10.7	-16.3	-16.3	-16.3	-16.3
North Dakota								
Northeast	-46.4	-22.5	-38.4	-4.6	-59.7	-26.8	-43.4	1.8
Northwest	-13.2	-12.0	-12.6	-11.6	-17.3	-15.5	-16.1	-15.1
Southeast	-22.3	-20.8	-21.9	-20.4	-28.1	-25.5	-26.7	-21.8
Southwest	-3.7	-2.9	-3.1	-2.7	-4.3	-3.1	-3.5	-2.6
	-7.2	13.2	-0.8	30.1	-10.0	17.3	2.9	41.3
South Dakota								
Northeast	32.2	34.5	32.8	42.9	31.0	35.1	34.5	45.0
Southeast	6.8	9.1	7.4	16.1	4.9	9.0	8.4	18.9
West	6.0	6.0	6.0	6.0	8.6	8.6	8.6	8.6
	19.4	19.4	19.4	20.8	17.5	17.5	17.5	17.5
Wyoming								
East	40.8	92.9	51.5	118.1	41.1	103.2	59.3	145.4
Northwest	18.4	53.3	29.1	78.1	13.2	53.8	31.4	94.5
Southwest	5.6	5.6	5.6	5.6	7.5	7.5	7.5	7.5
	16.7	34.1	16.7	34.5	20.4	41.9	20.4	43.4

Table F-128

SUMMARY OF PERSONAL INCOME
OLD WEST REGION
1980 AND 1985
(in millions of 1967 dollars)

Area	1980			1985		
	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternative
Old West Region	17,574.6	18,098.8	17,737.4	20,698.7	21,460.8	22,202.1
Montana	3,065.4	3,137.9	3,105.2	3,549.4	3,647.8	3,840.3
Northeast	1,128.1	1,128.1	1,128.1	1,300.1	1,300.1	1,300.1
Southeast	966.0	1,034.5	1,001.8	1,115.3	1,213.7	1,406.2
West	975.3	975.3	975.3	1,134.0	1,134.0	1,134.0
Nebraska	7,331.2	7,383.6	7,356.9	8,699.6	8,750.3	8,813.2
Central	1,461.3	1,489.1	1,475.0	1,723.7	1,761.5	1,783.0
East (Omaha)	3,009.3	3,033.9	3,021.3	3,636.3	3,649.2	3,690.6
Northeast	956.5	906.5	906.5	1,063.2	1,063.2	1,063.2
Southeast	1,554.7	1,554.7	1,554.7	1,848.6	1,848.6	1,848.6
West (Panhandle)	399.4	399.4	399.4	427.8	427.8	427.8
North Dakota	2,533.6	2,656.9	2,576.9	2,907.1	3,097.5	3,269.3
Northeast	593.9	599.7	597.3	686.0	694.9	700.5
Northwest	438.8	446.3	441.9	490.1	503.0	523.6
Southeast	821.0	885.2	884.8	1,014.8	1,021.8	1,023.6
Southwest	619.9	725.7	652.9	716.2	877.8	1,020.6
South Dakota	2,938.3	2,950.3	2,941.7	3,433.5	3,463.6	3,511.6
Northeast	858.4	870.4	861.8	986.4	1,016.5	1,064.5
Southeast	1,033.0	1,033.0	1,033.0	1,217.6	1,217.6	1,217.6
West	1,046.9	1,046.9	1,046.9	1,229.5	1,229.5	1,229.5
Wyoming	1,702.1	1,970.1	1,756.7	2,109.1	2,501.6	2,767.7
East	1,226.5	1,404.9	1,281.1	1,480.2	1,731.9	1,987.0
Northwest	206.0	206.0	206.0	263.1	263.1	263.1
Southwest	269.6	359.2	269.6	365.8	506.6	517.6

Table F-129

SUMMARY OF INCOME PER CAPITA
OLD WEST REGION
1980 AND 1985
(in 1967 dollars)

Area	1980				1985			
	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative	Adjusted OBERS Baseline	Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Old West Region	4,340	4,360	4,350	4,380	4,950	4,980	4,960	5,010
Montana								
Northeast	4,260	4,280	4,270	4,300	4,800	4,830	4,820	4,870
Southeast	4,410	4,410	4,410	4,410	4,990	4,990	4,990	4,990
West	4,170	4,220	4,200	4,290	4,670	4,760	4,720	4,900
West	4,190	4,190	4,190	4,190	4,720	4,720	4,720	4,720
Nebraska								
Central	4,640	4,650	4,650	4,650	5,270	5,280	5,280	5,290
East (Omaha)	4,630	4,700	4,690	4,720	5,360	5,380	5,360	5,390
Northeast	4,740	4,750	4,750	4,750	5,380	5,380	5,380	5,390
Southeast	4,390	4,390	4,390	4,390	5,060	5,060	5,060	5,060
West (Panhandle)	4,610	4,610	4,610	4,610	5,190	5,190	5,190	5,190
West (Panhandle)	4,520	4,520	4,520	4,520	5,000	5,000	5,000	5,000
North Dakota								
Northeast	4,130	4,170	4,140	4,200	4,660	4,720	4,690	4,770
Northwest	4,210	4,210	4,210	4,220	4,800	4,810	4,800	4,830
Southeast	3,690	3,710	3,700	3,710	4,130	4,150	4,150	4,190
Southwest	4,340	4,340	4,340	4,350	4,870	4,870	4,870	4,870
Southwest	4,110	4,240	4,160	4,330	4,650	4,840	4,740	4,970
South Dakota								
Northeast	3,980	3,980	3,980	3,990	4,520	4,530	4,520	4,540
Southeast	3,760	3,760	3,770	3,810	4,250	4,310	4,280	4,330
West	3,930	3,930	3,930	3,930	4,460	4,460	4,460	4,460
West	4,220	4,220	4,220	4,230	4,820	4,820	4,820	4,820
Wyoming								
East	4,270	4,370	4,290	4,410	5,120	5,280	5,170	5,360
Northwest	4,260	4,350	4,290	4,410	5,060	5,200	5,130	5,310
Southwest	3,840	3,840	3,840	3,840	4,630	4,630	4,630	4,630
Southwest	4,690	4,800	4,690	4,810	5,850	6,030	5,850	6,050

APPENDIX G

PROJECTIONS OF ENERGY AND
OTHER MAJOR DEVELOPMENTS

1.0 Introduction

This appendix presents the results of numerous interviews with public and private officials and of a review of the literature concerning potential investment projects which could be developed in the Region by 1985 and were not taken into account by either the OBERS or "adjusted" OBERS projections. The major portion of this analysis focuses on energy, particularly coal-related developments in the Region. These projects are of the type that can be influenced by State officials and others in the Region and elsewhere, and their development or rate of growth are subject to substantial variation. Consequently, three separate projections have been prepared for these particular projects: 1) a best estimate projection, referred to hereafter as "expected baseline"; 2) a low growth path which assumes a much slower rate of development to consider existing environmental and other concerns, hereafter referred to as "low estimate alternative"; and 3) a high growth path, more economic development oriented alternative, hereafter referred to as "high estimate alternative".

2.0 Energy-Related Developments

Tables in this section provide details on the formulation of economic projections of coal-related developments through 1985. The purpose of this analysis was to evaluate the expected direct employment impacts of these projected developments so that the total economic impacts could be assessed using the methodology described in Appendix F.

Chapter IV reviewed historical levels of coal mining activity in the Region and discussed the vast amount of coal reserves in the area available for strip-mining. Table G-1 projects expected coal mining activities in the Region through 1985. These activities are expected to be limited to four sub-State areas: Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming. The coal production projections to 1980 and 1985 are based upon recent State documents on existing and expected coal mining contracts (which generally resulted in the expected baseline projections), and discussions with Federal and State officials and the private sector transporters and users of coal. The low estimate alternative projections resulted largely from discussions with State officials on possible environmental concerns in the Region, although some Federal officials thought environmental restrictions would simply shelter those firms with existing coal mining permits and contracts and thereby allow them to increase production. Environmental restrictions, or the need for more global impact statements, would then perhaps result in little impact on the Region's coal production. The high estimate alternative is largely based on what appears to be optimistic development expectations on the part of private firms, especially the coal transporting railroads. Taken into account in these projections are expectations on regional power, gasification and transport projects (Tables G-3, G-4 and G-5) by sub-State area.

Table G-1

COAL PRODUCTION ESTIMATES AND PROJECTIONS
OLD WEST REGION
1971, 1974, 1980 AND 1985

State and Sub-State Area	Coal Production (in millions of short tons)							
	Actual Estimate		Projections					
			Expected Baseline		Low Estimate Alternatives		High Estimate Alternatives	
	1971	1974	1980	1985	1980	1985	1980	1985
Montana								
Southeast	7	14.1	50	70	35	50	75	100
North Dakota								
Southwest	6	8.5	25	50	20	35	30	75
Wyoming								
East	6	14.5	75	110	50	80	115	210
Southwest	2	4.4	20	25	15	25	20	30
Total	21	41.5	170	255	120	190	240	415

Source: Bureau of Mines, Minerals Yearbook, Department of the Interior, Washington, D.C.; projections developed from unpublished data provided by the States to the Northern Great Plains Resources Program; and discussions with appropriate State agency officials, Federal personnel, private firms and individuals.

Table G-2
OTHER PUBLIC AGENCY
COAL PRODUCTION PROJECTIONS
OLD WEST REGION
1980 and 1985
(in millions of short tons)

Agency	1980		1985		
	Business as Usual	Accelerated Development	Business as Usual	Accelerated Development	
Federal Energy Administration ¹	102	187	155	304	
	<u>Intermediate</u>	<u>Low</u> <u>High</u>	<u>Intermediate</u>	<u>Low</u> <u>High</u>	
Northern Great Plains Resource Program ²	107	91 160	197	108 382	

¹ Includes "Northern Great Plains Province" or Coal Supply Region No. 5 as defined by FEA.

² Includes 63-county area in the Old West Region; excludes Hanna Basin in East and all of Southwest, Wyoming.

Source: Interagency Task Force on Coal, Project Independence Blueprint, "Final Task Force Report: Coal," Federal Energy Administration, Washington, D.C., November 1974; and Northern Great Plains Resource Program, "Draft Report," September 1974.

Table G-3

PROJECTED DEVELOPMENT SCHEDULE OF COAL-FIRED
POWER PLANTS
OLD WEST REGION

State and Sub-State Area	Power Plant Name	Generating Capacity (megawatts)	Projected Operational Schedule (By Year)		
			Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Montana					
Southeast	Colstrip 1	330	1975	1975	1975
	Colstrip 2	330	1976	1976	1976
	Colstrip 3	700	1981	None	1980
	Colstrip 4	700	None	None	1981
	Unknown	700	None	None	1983/84
	Unknown	700	None	None	1986/87
Nebraska					
Central	Gentleman 1	600	1979	1981	1978
	Gentleman 2	600	1984	None	1980
	Unknown	600	None	None	1982/83
	Unknown	600	None	None	1986/87
East	Nebraska City	600	1979	1981	1979
	Unknown	600	None	None	1986/87
North Dakota					
Southwest	Leland Olds 2	440	1975	1975	1975
	Milton K. Young 2	408	1977	1977	1977
	Coal Creek 1	430	1978	1982	1978
	Coal Creek 2	430	1979	1983	1979
	Beulah 1	400	1981	None	1979
	Beulah 2	400	1982	None	1980
	Unknown	400	None	None	1983/84
	Unknown	400	None	None	1986/87
South Dakota					
Northeast	Big Stone	440	1975	1975	1975
	Unknown	440	None	None	1983/84
	Unknown	440	None	None	1984/85
	Unknown	440	None	None	1985/86
	Unknown	440	None	None	1986/87
Wyoming					
East	Wyodak 1	330	1978	1982	1978
	Laramie River 1	500	1980	None	1979
	Laramie River 2	52	1981	None	1980
	Laramie River 3	320	1983	None	1981
	Unknown	500	None	None	1983
Southwest	Jim Bridger 1	500	1974	1974	1974
	Jim Bridger 2	500	1976	1976	1976
	Jim Bridger 3	500	1977	1977	1977
	Jim Bridger 4	500	1979	1982	1979
	Naughton 4	415	1982	1984	1979
	Naughton 5	415	1984	None	1982
	Unknown	500	None	None	1983

Source: Ten-year power development plans filed with the Federal Power Commission, and discussions with Federal and State officials. "Unknown" listings added only in "High Estimate Alternative" to indicate what further developments might occur if construction continued beyond "expected baseline" case.

Table G-4

PROJECTED DEVELOPMENT SCHEDULE
OF COAL GASIFICATION PLANTS
OLD WEST REGION

State and Sub-State Area	Generating Capacity (millions of cubic feet per day)	Projected Operational Schedule (By Year)		
		Expected Baseline	Low Estimate Alternative	High Estimate Alternative
Montana				
Southeast ²	125-250	None	None	1984/85
North Dakota				
Southwest	250 250	1982/83 None	None None	1981/82 1984/85
Wyoming				
East	250	None	None	1984/85

¹ All plants assumed to be based on Lurgi process.

² Possibly could be located in the Northeast area near Glasgow.

Source: Discussions with potential coal gasification firms and public officials.

Table G-5

COAL UTILIZATION ESTIMATES
AND PROJECTIONS
OLD WEST REGION
1971, 1974, 1980 and 1985
(in millions of short tons)

Utilization	Actual Estimate		Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1971	1974	1980	1985	1980	1985	1980	1985
Regional Power Plants ¹	10	13	40	57	27	42	50	80
Regional Gasifica- tion Plants ²	0	0	0	9	0	0	0	35
Export or Other Uses	11	29	130	189	93	148	190	300
-- Transport Method								
-- Railroad	(11)	(29)	(130)	(164)	(93)	(148)	(190)	(250)
-- Slurry Pipeline	(0)	(0)	(0)	(25) ³	(0)	(0)	(0)	(50) ⁴
Total	21	42	170	255	120	190	240	415

¹ Assumes utilization of about 4.5 million tons of coal per 1,000 megawatts generating capacity for projections.

² Assumes utilization of about 9 million tons of coal per 250 million cubic feet of gas produced per day, Lurgi process.

³ Assumes one pipeline from East, Wyoming transporting 25 million tons of coal annually.

⁴ Assumes an additional pipeline transporting 25 million tons per year from East, Wyoming.

Table G-1 indicates that the expected baseline projection of coal production is 355 million tons by 1985, with a potential range (low and high estimate alternatives) of from 199 to 415 million tons. This compares (see Table G-2) with an earlier Federal Energy Administration (FEA) 1985 coal production estimate of from 155 to 304 million tons for the Region and another 1985 projection by the Northern Great Plains Resource Program (NGPRP) of from 108 to 382 million tons, with an "intermediate" estimate of 197 million tons. However, the NGPRP estimate excluded Southwest Wyoming and the Hanna Basin in East Wyoming. The latter has been termed a "real potential sleeper" in terms of coal development activities in the Region.

Table G-3 provides data on the development schedule for coal-fired power plants in the Region by sub-State area. The expected baseline schedule was prepared from the actual ten-year power development plans on file with the Federal Power Commission (FPC). The low estimate alternative was prepared after discussions with State officials on possible delays in the expected construction schedule. The high estimate alternative was prepared simply by accelerating power construction schedules and adding project plans at a continuing rate of development.

Table G-4, the projected development schedule of coal gasification plants in the Region, resulted after extensive discussions with prospective private developers and a review of the one pending application with the FPC for construction of such a plant. This review resulted in the conclusion that from zero to four such plants could be in operation in the Region by 1985, but it was likely or expected that only one could be in operation by that time.

Table G-5 summarizes the utilization of coal production in the Region through 1985--by regional power plants, by regional gasification plants, and that exported by railroad and slurry pipeline. Discussions with potential private developers, and State and Federal officials indicated a potential of zero to two coal slurry pipelines (transporting 25 million tons each per year) being in operation in the Region by 1985. It is expected that one would at least be in operation by 1985.²

1

The FEA projection was part of a more general National projection. In addition, a separate study on the constraints of increased coal production (using the FEA projections) concluded that the possible constraints to "accelerated" (see Table G-2) coal production in the Northern Great Plains would be the availability of draglines and manpower, with draglines appearing to be a supply problem only until 1977. See, J. Bhutani, et al., An Analysis of Constraints on Increased Coal Production, prepared by Mitre Corp. for Department of the Interior, January 1975.

2

At present there exists a substantial debate on the use and construction of coal slurry pipelines in the Region. The debate includes economic, water resource, and institutional/legal concerns and potential constraints. The projections are based on an analysis of the information provided by the several sources noted.

Tables G-6 through G-11 show expected employment estimates for coal production, coal utilization, and related construction activities. Assumptions are shown in Tables G-6 through G-10 for calculating the direct employment expected from these activities. Assumptions on unit employment ratios (e.g., employees per million tons of coal mined, employees per 1,000 megawatts of power generating capacity, etc.) were derived from the following sources:¹

- Northern Great Plains Resource Program, "Draft Report," September, 1974; and NGPRP, "Effects of Coal Development in the Northern Great Plains," April 1975;
- D. Freudenthal, P. Ricciardelli, M. York, Coal Development Alternatives, a report prepared by the Wyoming Department of Economic Planning and Development for the Wyoming Legislative Special Subcommittee on Consumptive Water Use, December 1974
- R. A. Luken, Economic and Social Impacts of Coal Development in the 1970's for Mercer County, North Dakota, prepared by Thomas E. Carroll Associates for the Old West Regional Commission, Washington, D.C., 1974;
- S. G. Miller, Environmental Impacts of Alternative Conversion Processes for Western Coal Development, prepared by Thomas E. Carroll Associates for the Old West Regional Commission, Washington, D.C., 1974; and
- Various State documents on existing coal operations and development expectations and the proposals of specific private firms for coal gasification, slurry pipeline and other projects.

Table G-11 aggregates the results of the various direct employment estimates associated with the expected coal-related developments. However, it should be pointed out that the construction employment estimates shown for 1980 and 1985 are averages over several years and actually represent construction employment in a typical year in the period 1977 to 1982 (for 1980) and 1982 to 1985 (for 1985). Construction employment can have wide variation from year-to-year and is highly dependent on actual construction schedules. Therefore, for projection purposes it

¹

These sources were also used in determining coal utilization estimates for power and gasification plants as shown in Table G-5.

Table G-6

COAL MINING PERMANENT
EMPLOYMENT ESTIMATES AND PROJECTIONS
OLD WEST REGION
1971, 1974, 1980 AND 1985

State and Sub-State Area	Coal Mining Employment							
	Actual Estimate ¹		Projections ²					
			Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1971	1974	1980	1985	1980	1985	1980	1985
Montana								
Southeast	210	420	1,375	1,925	960	1,375	2,060	2,750
North Dakota								
Southwest	180	260	690	1,375	550	960	825	2,060
Wyoming								
East	180	440	2,060	3,025	1,375	2,200	3,160	5,775
Southwest	60	130	550	690	410	690	550	825

¹ Assumes 30 employees per million tons of coal mined.

² Assumes 27.5 employees per million tons of coal mined.

Note: Calculated by applying assumptions to Table G-1.

Table G-7

COAL-FIRED POWER PLANTS
PERMANENT EMPLOYMENT ESTIMATES AND PROJECTIONS
OLD WEST REGION
1971, 1974, 1980 AND 1985

State and Sub-State Area	Coal-fired Power Plant Employment ¹							
	Actual Estimate		Expected Baseline		Projections		High Estimate Alternative	
					Low Estimate Alternative			
	1971	1974	1980	1985	1980	1985	1980	1985
Montana								
Southeast	25	30	150	280	150	150	170	530
Nebraska								
Central	0	0	110	220	0	110	160	320
East	50	50	160	160	50	160	160	160
North Dakota								
Southwest	180	200	470	650	350	510	610	790
South Dakota								
Northeast	0	0	80	80	80	80	80	240
Wyoming								
East	0	0	90	220	0	60	150	310
Southwest	140	230	590	740	500	670	660	830

¹ Assumes 180 employees per 1,000 megawatt generating capacity for projections. Actual estimates calculated assuming about 40 employees per ton of coal utilized in power generating plants. The latter is based on historical data for parts of the Region.

Note: Calculated by applying assumptions to Table G-3.

Table G-8

COAL GASIFICATION PLANTS PERMANENT
EMPLOYMENT PROJECTIONS
OLD WEST REGION
1980 AND 1985

State and Sub-State Area	Coal Gasification Plant Employment Projections ¹					
	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1980	1985	1980	1985	1980	1985
Montana						
Southeast	0	0	0	0	0	750
North Dakota						
Southwest	0	750	0	0	0	1,500
Wyoming						
East	0	0	0	0	0	750

¹ Assumes 750 employees per 250 million cubic feet per day coal gasification plant, Lurgi process.

Note: Calculated by applying assumption to Table G-4.

Table G-9

COAL TRANSPORTATION PERMANENT
EMPLOYMENT ESTIMATES AND PROJECTIONS
OLD WEST REGION
1971, 1974, 1980 AND 1985

State and Sub-State Area	Coal Transportation Employment ¹							
	Actual Estimate		Projections					
			Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
			1971	1974	1980	1985	1980	1985
Montana								
Southeast	30	60	235	320	170	245	360	390
Nebraska								
Central	0	0	0	10	0	0	0	20
West	0	0	0	10	0	0	0	20
North Dakota								
Southwest	10	25	95	140	85	125	100	215
Wyoming								
East	25	65	270	380	160	320	440	730
Southwest	0	0	60	60	60	60	60	100

¹ Excludes railroad maintenance and other employment along right-of-way. Assumes use of railroad (about 5 employees per million tons of coal moved in mine area) and slurry pipeline (employment estimates obtained from potential developer).

Note: Calculated by applying assumptions to transport portion of Table G-5.

Table G-10

**COAL PRODUCTION AND UTILIZATION CONSTRUCTION
EMPLOYMENT ESTIMATES AND PROJECTIONS
OLD WEST REGION
1971, 1974, 1980 AND 1985**

State and Sub-State Area	Activity	Construction Employment ¹												
		Actual		Projections										
		Estimate 1971	1974	Expected Baseline		Low Estimate Alternative		High Estimate Alternative		Alternative		Alternative		
				1977/78	1980	1982/83	1985	1977/78	1980	1982/83	1985	1977/78	1980	1982/83
Montana	Mining	50	50	120	120	120	120	90	90	90	90	150	150	150
Southeast	Power Plant	0	750	300	800	0	0	0	0	0	0	500	2,000	1,500
	Gasification	0	0	0	0	0	0	0	0	0	0	0	500	2,500
	Subtotal	50	800	420	920	120	120	90	90	90	90	650	2,650	4,150
														1,150
Nebraska	Power Plant	0	0	1,000	0	1,000	0	0	900	0	0	1,700	1,500	500
Central														1,000
	Power Plant	0	0	1,000	0	1,000	0	0	900	0	0	1,200	0	500
East														1,000
North Dakota	Mining	30	30	150	150	150	150	90	90	90	90	270	270	270
Southwest	Power Plant	0	1,000	2,100	1,500	300	0	300	500	1,000	0	3,100	400	1,200
	Gasification	0	0	0	1,000	1,500	0	0	0	0	0	1,000	3,000	2,500
	Subtotal	30	1,030	2,250	2,650	1,950	150	390	590	1,090	90	4,370	3,670	3,970
														1,070
South Dakota	Power Plant	0	800	0	0	0	0	0	0	0	0	400	1,300	400
Northeast														
Wyoming	Mining	40	50	210	210	210	210	180	180	180	180	570	570	570
East	Power Plant	0	0	1,000	400	500	0	0	300	400	0	1,600	400	1,000
	Gasification	0	0	0	0	0	0	0	0	0	0	0	500	2,500
	Slurry Pipeline	0	0	0	0	300	0	0	0	0	0	0	300	300
	Subtotal	40	50	1,210	610	1,010	210	180	480	580	180	2,170	1,770	4,370
														1,070
Southwest	Mining	50	50	30	30	30	30	60	60	60	60	60	60	60
	Power Plant	950	1,250	800	1,000	800	0	0	900	1,400	0	1,500	400	1,000
	Subtotal	1,000	1,300	830	1,030	830	30	60	960	1,460	60	1,560	460	1,060
														660

¹ Assumes three years to construct coal-fired power generating plants with peak employment at about 2,000 (e.g., year 1 at 1,000, year 2 at 2,000, year 3 at 1,500) for 1,000 megawatt plant; four years for construction of Lurgi type coal gasification plant, 250 million cubic feet per day capacity with peak employment at 2,500 (e.g., year 1 at 1,000, year 2 at 2,500, year 3 at 2,500, year 4 at 1,000); one to two years with 300 workers to build processing plant at source of slurry pip-line; and 150 workers for two years to increase coal production by 10 million tons per year. Excluded are construction workers for any additional transmission lines (power, gas pipe-line, and railroad).

Note: Calculated by applying assumptions as appropriate to Tables G-1, G-3, G-4 and G-5.

TOTAL EMPLOYMENT ESTIMATES AND PROJECTIONS
ASSOCIATED WITH COAL PRODUCTION AND UTILIZATION
OLD WEST REGION
1971, 1974, 1980 AND 1985

Area	Employment Estimates		Employment Projections ¹					
			Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1971	1974	1980	1985	1980	1985	1980	1985
Region								
Mining	630	1,250	4,675	7,015	3,295	5,225	6,595	11,410
Power Plants	395	510	1,650	2,350	1,130	1,740	1,990	3,180
Gasification Plants	0	0	0	750	0	0	0	3,000
Transportation	65	150	660	910	475	750	960	1,455
Construction	1,120	3,980	5,200	3,020	1,990	1,790	11,000	10,900
Total	2,210	5,890	12,185	14,045	6,890	9,505	20,545	29,945
Montana								
Southeast								
Mining	210	420	1,375	1,925	960	1,375	2,060	2,750
Power Plants	25	30	150	280	150	150	170	530
Gasification Plants	0	0	0	0	0	0	0	750
Transportation	30	60	235	320	170	245	360	390
Construction	50	800	400	120	90	90	1,600	2,600
Subtotal	315	1,310	2,160	2,645	1,370	1,860	4,190	7,020
Nebraska								
Central								
Power Plants	0	0	110	220	0	110	160	320
Transportation	0	0	0	10	0	0	0	20
Construction	0	0	500	500	300	0	1,200	800
Subtotal	0	0	610	730	300	110	1,360	1,140
East								
Power Plants	50	50	160	160	50	160	160	160
Construction	0	0	500	100	300	0	600	800
Subtotal	50	50	660	260	350	160	760	960
North Dakota								
Southwest								
Mining	180	260	690	1,375	550	960	825	2,060
Power Plants	180	200	470	650	350	510	610	790
Gasification Plants	0	0	0	750	0	0	0	1,500
Transportation	10	25	95	140	85	125	100	215
Construction	30	1,030	2,000	1,100	500	600	4,000	2,500
Subtotal	400	1,515	3,255	4,015	1,485	2,195	5,535	7,065
South Dakota								
Northeast								
Power Plants	0	0	80	80	80	80	80	240
Construction	0	800	0	0	0	0	600	800
Subtotal	0	800	80	80	80	80	680	2,040
Wyoming								
East								
Mining	180	440	2,060	3,025	1,375	2,200	3,160	5,775
Power Plants	0	0	90	220	0	60	150	310
Gasification Plants	0	0	0	0	0	0	0	750
Transportation	25	65	270	380	160	320	440	730
Construction	40	50	900	600	300	400	2,000	2,500
Subtotal	245	555	3,320	4,225	1,835	2,980	5,750	10,065
Southwest								
Mining	60	130	550	690	410	690	550	825
Power Plants	140	230	590	740	500	670	660	830
Gasification Plants	0	0	0	0	0	0	0	0
Transportation	0	0	60	60	60	60	60	100
Construction	1,000	1,300	900	600	500	700	1,000	900
Subtotal	1,200	1,660	2,100	2,090	1,470	2,120	2,270	2,655

¹ Construction workers shown in these projections have been averaged over several years.

Note: Calculated by aggregating the results in Tables G-6 through G-10.

was essential to select an average or typical year that would be representative of conditions in 1980 and 1985, as opposed to selecting an atypical year where conditions would be different immediately before or after that year. The impact at maximum in any single year (i.e., 1980 or 1985) would be a gain (plus) or a loss (minus) of about one thousand jobs in the low estimate alternative (that is, out of about 7 to 10 thousand total projected jobs) and plus or minus 5 thousand jobs (1985 only) in the high estimate alternative (or out of about 30 thousand total projected jobs in 1985).

The only other major energy developments in the Region not taken into account by the "adjusted" OBERS projections appears to be uranium production. State of Wyoming officials provided estimates of expected production levels and associated direct employment. These data appear in Table G-12. Discussions with Tennessee Valley Authority officials hinted of potentially large uranium developments in Wyoming and South Dakota. But only those shown in Wyoming could be verified.

3.0 Other Developments

The only other developments that could be discovered as being unaccounted for in the "adjusted" OBERS projections were expectations regarding trona production in Wyoming, potash production in North Dakota, the Garrison Diversion project in North Dakota and the Oahe Diversion project in South Dakota. The potential direct impacts of these projects are presented in Tables G-13 through G-16. These results were used as outlined in Appendix F to project the total expected regional economic impacts of these developments through 1985.

Potash developments in North Dakota appear to depend partially upon particular restrictions being placed on private potash producers by the Provincial Government in Saskatchewan, Canada. Apparently, such restrictions could lead to the development of potash supplies in the U.S., a large importer of Saskatchewan potash. North Dakota has potash supplies below conventional depths and would require utilization of a "solution" mining recovery process, a process that is being successfully operated in Saskatchewan. However, North Dakota's potash supplies lie much deeper below the ground surface than those in Canada. Given the tentativeness of the expected development and potential technological difficulties, potash production is only shown in the "high estimate alternative" for 1985.

The Bureau of Reclamation Garrison and Oahe water diversion projects have been in the planning stage for a number of years. Construction of both projects is expected to be completed in the 1990's. Construction of the Garrison Diversion project is underway, although specific environmental concerns could delay construction. The Oahe Diversion project is presently being held up pending particular environmental assessments. However, as Tables G-15 and G-16 show, using any of the growth assumptions, the expected direct impacts of these projects on construction employment and net (or even gross) farm income are quite limited in either 1980 or 1985.

Table G-12

EXPECTED URANIUM PRODUCTION AND EMPLOYMENT CHANGES¹
 EAST AND SOUTHWEST, WYOMING
 1974, 1980 AND 1985

<u>Area</u>	<u>1974</u>	<u>1980</u>	<u>1985</u>
East			
Production, in millions of short tons of ore	1.2	3.2 ¹	5.2 ¹
Employment	1,117	3,000	5,000
Southwest			
Production, in millions of short tons of ore	0	2.0 ¹	2.0 ¹
Employment	0	2,000	2,000

¹ These represent apparently good estimates of expected production and no separate "high" or "low" estimate alternatives were provided.

Source: Based on discussions with State of Wyoming officials.

Table G-13

EXPECTED TRONA PRODUCTION AND EMPLOYMENT CHANGES
 SOUTHWEST, WYOMING
 1970, 1974, 1980 AND 1985

	<u>1970</u>	<u>1974</u>	<u>1980</u>	<u>1985</u>
Production, in millions of short tons	4.3	7.6	13.6 ¹	18 ¹
Employment	1,072	2,490	4,000	5,000

¹ These represent apparently good estimates of expected production and no separate "high" or "low" estimate alternatives were provided.

Source: Based on discussions with State of Wyoming officials.

Table G-14

EXPECTED POTASH PRODUCTION
AND EMPLOYMENT PROJECTIONS
NORTHWEST, NORTH DAKOTA
1980 AND 1985

	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1980	1985	1980	1985	1980	1985
Production in millions of short tons	0	0	0	0	0	2-3
Employment	0	0	0	0	0	400

Source: Based on discussions with State of North Dakota officials and private industry sources in the U.S. and Canada.

Table G-15

EXPECTED DIRECT IMPACTS OF
GARRISON DIVERSION UNIT
NORTH DAKOTA
1974, 1980 AND 1985

Construction Activity	Current Estimate 1975	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
		1980	1985	1980	1985	1980	1985
Employment							
Bureau of Reclamation	85	85	85	85	85	100	120
Contractors	330	300	270	350	300	350	325
Estimated Distribution by Sub-State Area							
Northeast (%)	0	25	30	40	30	30	30
Northwest (%)	0	50	40	20	40	40	40
Southeast (%)	20	25	30	20	30	30	30
Southwest (%)	80	0	0	20	0	0	0
Agricultural Irrigation Activity							
Acres under Cultivation, in thousands	0	20	90	0	30	40	120
Gross Farm Income, in millions of 1962 dollars	0	2.7	12.2	0	4.1	5.4	19.0
Farm expenses in millions of 1962 dollars	0	1.6	7.2	0	2.4	3.2	11.2
Estimated Distribution by Sub-State Area							
Northeast (%)		30	30		30	40	30
Northwest (%)		40	50		50	45	50
Southeast (%)		0	10		0	0	15
Southwest (%)		30	10		20	15	5

Note: The entire project was expected to cost \$341 million in 1972 prices and to provide for irrigating 250,000 acres of land. Construction is due to be completed in 1991.

Source: Bureau of Reclamation, Final Environmental Statement Initial Stage Garrison Diversion Unit, U.S. Department of Interior, 1975; "Social and Economic Impacts 250,000 acre Garrison Diversion Unit" (undated and no author show, but Reclamation indicated from thesis of L.D. Sand, North Dakota State University, August 1966); and discussions with State, Federal and Congressional officials provided basis for estimates.

Table G-16

EXPECTED DIRECT IMPACTS OF
Oahe DIVERSION UNIT
SOUTH DAKOTA
1975, 1980 AND 1985

	Current Estimate 1975	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
<u>Construction Activity</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>
Employment							
Bureau of Reclamation	0	80	80	0	80	90	90
Contractors	0	335	280	0	335	320	300
Agricultural Irrigation Activity							
Acres Under Cultivation, in thousands	0	0	5	0	0	0	45
Gross Farm Income, in millions of 1965 dollars	0	0	0.8	0	0	0	7.1
Farm Expenses, in millions of 1965 dollars	0	0	0.4	0	0	0	3.6

note All direct impacts are expected to occur in Northeast, South Dakota in the years shown except for construction employment "expected baseline" for 1980 where one-half of the employment is expected to occur in Northeast and the remainder in West, South Dakota. The entire project was expected to cost \$290 million (in 1970 prices) and to provide for the irrigation of 190,000 acres of land ("expected baseline suggests completion of project about 1995, and full production about 1997).

source Bureau of Reclamation, Definite Plan Report on Initial Stage Oahe Unit, U.S. Department of the Interior, 1971; Bureau of Reclamation, Final Environmental Statement Initial Stage Oahe Unit, U.S. Department of the Interior, 1973; and discussions with State and Congressional officials provided basis for estimates.

APPENDIX H

METHODOLOGY FOR NATURAL INCREASE POPULATION PROJECTIONS

1.0 Introduction

Population projections due to natural increase (assuming no in- or out-migration) as presented in Chapter X for 1980 and 1985 were developed using a cohort-survival technique. This method incorporates differences in age structure, fertility rates, sex ratios, and age and sex specific survival rates to produce highly reliable estimates of the size and composition of future populations due solely to natural increase. In addition to using this technique to project natural increase population, it was also used to obtain estimates of migration by age and sex between 1960 and 1970 as presented in Chapter II.

2.0 Projections

Projections of the natural increase population for 1980 and 1985 were developed from the 1970 base population obtained from the U.S. Census. Population by sub-State area was categorized into five-year age groups by sex. Survival and fertility rates were applied to the actual 1970 population and the groupings were aged in five-year increments in order to arrive at 1980 and 1985 natural increase population estimates by age and sex. Annual births, which over each five-year period would comprise the 0-4 age cohort, were projected by applying the average projected fertility rate for each five-year interval to the average population of women over that interval 15 to 44 years of age. The appropriate survival rates were applied to births to survive each year's total to the end of the interval. This process was repeated for each sub-State area through 1985.

The fertility rate used in this study is the general fertility rate which is defined as the annual number of births per thousand women 15-44 years of age. Fertility rates by sub-State area were projected through 1985 by assuming that they would fall from the 1970 historical rate (the last data point available by sub-State area) at the national rate of decline to 1974 and then continue to decline at the historical 1965-1970 rate for each individual sub-State area until a rate of 70 per thousand was reached. Once this rate was reached, the fertility rate was held constant at this level through 1985. Seventy births per 1,000 women 15-44 years of age is equivalent to an average of 2.1 births per woman, or what is generally referred to as the replacement level of births. If the age distribution of the population was more uniform, this rate would also be the zero population growth fertility rate. Births were divided by sex by assuming the national ratio of 1.049 male births to every female birth.¹

¹ Vital Statistics of the United States, 1968, Vol. 1, "Natality", U.S. Department of Health, Education and Welfare.

A survival rate, as used in this study, is defined as the number of people in a specified age group alive at the end of a chosen period of time divided by the number of people in the age group alive at the beginning of the time period. For use in the natural increase model it was necessary to obtain five-year survival rates by sex by five-year age group. On an historical basis, rates meeting all of the above mentioned criteria are not available by State. However, survival rates are published by States for the age groups 0-4, 5-19, 20-44, 45-64, and 65 plus. In addition, survival rates for the nation which meet all the necessary conditions are available. Therefore, State survival rates were broken out by five-year age groups by sex under the assumption that the male/female differentials within age groups and the distribution of five-year age groups within each of the age groupings available on a State basis followed the national distribution. This adjustment allowed State differentials in survival rates to be maintained in projecting natural increase.

3.0 Migration 1960-1970

Estimates of 1960 to 1970 in- or out-migration, as summarized in Chapter II, Table II-14, were obtained by calculating the natural increase in population between 1960 and 1970, adding the natural increase population to the 1960 census age and sex distributions, and comparing these projections to the actual 1970 population as measured by the census. These estimates were produced on a county basis and aggregated to the sub-State, State, and Region levels. A more detailed discussion of the procedure follows.

An average population by sex and by five-year age group was calculated for each county from 1960 and 1970 census data. From Vital Statistics, data on actual births and deaths by county were obtained. From these, an annual average number of births and deaths were calculated for each county. By dividing average annual births by average women of child bearing age (15-44), an average annual fertility rate was determined. Thus, in calculating the natural increase population, births would be forced to equal the actual recorded number. In addition, State survival rates were adjusted by age and sex to yield the actual number of recorded deaths over the 1960 to 1970 period in each county.

Using the county specific fertility and survival rates computed as described above, the natural increase population was determined by county for 1970 using the methodology described in Section 2.0 of this appendix. By subtracting 1970 natural increase population by age and sex from the actual age and sex distribution obtained from 1970 census reports, an estimate of migration by age-sex specific cohorts was obtained. This approach to estimating migration yields answers which are slightly different from the Bureau of Census estimates of migration since babies born to people between 1960-1970, after they had moved into a given county, are counted as part of the in-migration. Also, babies born during the decade to persons after they had left a given county are counted as out-migrants. However, this approach yields estimates of migration by age group, by sex and by sub-State areas which are not available from census reports.

APPENDIX I

A METHODOLOGY FOR ASSESSING THE
ENVIRONMENTAL IMPACT OF ALTERNATIVE
ECONOMIC GROWTH

1.0 Introduction

This appendix presents the techniques and results of an analysis used to project the environmental impact of the several alternative growth paths. (See Appendix F).

The methodology consists of estimating the quantity of pollutants discharged into the air and water for alternative growth projections and assuming implementation of mandatory abatement programs. For comparison purposes, base year (1973) pollutant discharges are also computed. The analysis does not attempt to compute ambient levels of pollutants in the air or water which would result from the discharges, since such an analysis requires a large quantity of historic ambient data as well as detailed assumptions concerning the siting of all new facilities--assumptions which may not hold valid over a ten-year period. Also, hydrologic or meteorologic models are needed to predict the conversion of emissions to ambient levels of pollution.

For the base case, various pollution generating activities are identified and their current levels of pollution discharge are determined assuming existing controls. Similar estimates of pollution discharges are provided for alternative economic and population projections. These projected estimates include an analysis of the effects of: 1) achievement of abatement objectives for 1973 sources; 2) generation of pollutants due to non-energy related growth; and 3) generation of pollutants due to new energy development.

2.0 Activities and Pollutants Studied

Three waterborne pollutants and five airborne pollutants were selected for study in the base year and two waterborne and three airborne pollutants were selected for detailed future year analysis. The primary sources of water pollutants considered in this study were energy-related facilities, industrial activity, municipal sewage treatment, and agriculture and forestry land use. The air pollutants studied were those generated by the following activities: residential, industrial, energy production, transportation, commercial and other (e.g., forest fires, agricultural burning, forestry maintenance burning and solid waste incineration). Sources of pollution not included in this analysis are listed below.

1) Particulates

These consist of fugitive dust from sources such as dirt roads, tillage, etc. This is a large source of particulate matter in the Region and is omitted from the analysis only because adequate source emission data are not available.

2) Biological Oxygen Demand (BOD), Suspended Solids (SS) and Phosphorous (P)

Sources such as stormwater, combined sewer overflow, construction and feedlots are not included. These are omitted because accurate source emissions data are not available. These sources would be of greatest significance in densely developed areas of the Region.

The choice of the pollutants to study was based on several factors. Briefly, the selected pollutants are: 1) widely known and used as indicators of relative environmental degradation and act as surrogates for other pollutants; 2) those emitted directly from the sources of interest at levels which have been extensively studied; and 3) those likely to be of State and regional significance rather than only local significance. The study does not include microenvironmental conditions resulting from a specifically located source, nor does it take into consideration the more esoteric but yet highly toxic pollutants such as trace elements.

In making future projections, the number of pollutants studied was further reduced in order to include only those which might be significantly affected by new development. For water, phosphorous was eliminated because source characteristics and removal efficiencies would show a dominance of agricultural sources similar to BOD and SS. The measure of suspended solids (SS) was chosen in lieu of dissolved solids because data regarding point source discharges of dissolved solids are not consistently available throughout the Region. In addition, it is anticipated that the short-term effects of surface mining activity will be more significant for suspended solids than for dissolved solids. For air pollutants, hydrocarbons and carbon monoxide were eliminated since they are not significantly affected by the energy-related developments under study.

The areas selected for study were 1) the total Region, 2) the five States within the Region, and 3) the 18 sub-State areas. The sub-State areas correspond to the geographic areas for which detailed economic projections were made. Results of the study are presented for the Region, the States, and five selected sub-State areas which are expected to be subject to the most environmentally significant impacts due to energy developments.

3.0 Current Pollution Discharge

Current air and water pollutants were estimated for the Old West Region for 1973. A variety of sources and techniques were used to obtain the 1) estimates of base year pollutants discharged into the environment, and 2) estimates of the base year pollutant quantities which would have been discharged assuming implementation of Federally required controls. The key sources used for estimating air pollutants were the County Summary Reports from EPA's National Emissions Data System (NEDS).¹ These reports

1

Office of Air Programs, National Emissions Data System, "County Reports," EPA, Research Triangle Park, N.C., 1975.

provided a breakdown of the emissions discharged by a series of source types. This information was then aggregated into the six major activities studied. For use in computing the effects of controls, the industrial category was subdivided by industry type. The generation of pollutants from solid waste disposal was separated from the "Other" category. Industrial categories which were treated in detail in this analysis are 1) industrial fuel, 2) chemical manufacturing, 3) food/agriculture, 4) primary metal, 5) secondary metals, 6) mineral products, 7) petroleum industry, 8) wood products, and 9) transportation.

1973 discharges were computed directly from the NEDS county printout by assigning the pollutants to the appropriate activity and aggregating to the appropriate study area. Total air pollutants discharged in State and sub-State areas of the Old West Region are shown in Table I-1.

Information on the effects of abatement controls on emissions was taken from the 1973 Cost of Clean Air.¹ For the controllable categories, the average control required by the State Implementation Plans (SIP's) to meet the national ambient air quality requirements specified in the Clean Air Act was extracted and applied to the NEDS file. The reason for applying national average abatement rather than specific state-by-state SIP requirements was to account for the tightening of existing source requirements as additional development occurs in areas currently meeting standards. Thus, the projected emissions with controls represent the average control which is required to meet national ambient air quality in all areas of the nation. For the relatively undeveloped Old West Region, this would generally represent controls more stringent than currently required since ambient standards are presently being met in most of the Region.

Information on water pollutants was derived from the 1974 Needs Survey² data base for publicly owned treatment works and from the National Bureau of Economic Research (NBER) summary for mining, manufacturing, and agriculture and forestry.³ The Needs Survey data were aggregated at the

1

Office of Planning and Evaluations, The Cost of Clean Air, EPA, Washington, D.C., 1973.

2

Office of Water Program Operations, 1974 Needs Survey, EPA, Washington, D.C., 1975.

3

National Bureau of Economic Research, "Table of Water Effluent Discharges by SIC", Washington, D.C., 1975.

Table I-1

TOTAL AIR POLLUTANTS DISCHARGED BY STATE AND SUB-STATE AREAS¹
 OLD WEST REGION
 1973
 (in tons per year)

	<u>Particulate</u>	<u>SOx</u>	<u>NOx</u>	<u>HC</u>	<u>CO</u>
Old West Region	688,947	1,108,140	618,268	725,644	3,033,308
Montana					
Northeast	27,256	209,744	29,718	93,566	283,419
Southeast	241,148	639,363	128,472	160,899	212,962
West	84,645	12,152	41,607	96,768	510,376
State Total	353,049	861,259	199,797	351,233	1,006,757
Nebraska					
Central	20,144	14,927	55,520	35,298	186,463
East	56,338	46,602	47,412	47,537	237,504
Northeast	6,061	2,105	18,609	23,475	128,242
Southeast	18,046	16,864	32,710	30,042	161,879
West	3,446	2,273	10,944	10,699	56,570
State Total	104,035	82,771	165,195	147,051	770,658
North Dakota					
Northeast	12,345	4,413	12,948	14,495	84,351
Northwest	8,433	7,932	13,761	13,060	75,497
Southeast	26,705	5,669	18,648	21,115	126,512
Southwest	37,563	61,234	52,926	22,855	124,848
State Total	85,046	79,248	98,283	71,525	411,208
South Dakota					
Northeast	17,645	2,927	15,471	27,183	152,071
Southeast	14,839	4,430	19,403	29,514	160,641
West	27,283	7,313	17,778	28,484	150,221
State Total	59,767	14,670	52,652	85,181	462,933
Wyoming					
East	48,460	48,742	65,944	54,483	305,076
Northwest	2,329	975	7,206	9,390	40,031
Southwest	36,261	20,475	29,191	6,781	36,645
State Total	87,050	70,192	102,341	70,654	381,752
United States	16,829,184	37,859,172	25,192,726	23,536,353	104,798,209

¹ With current controls.

Source: State and County Emissions Reports, National Emissions Data System, Research Triangle Park, North Carolina, 1975.

facility level using a computer model prepared for the 1975 Economics of Clean Environment¹ report. Mining and manufacturing pollutants were allocated to study areas based on employment shares from County Business Patterns.² Agriculture and forestry pollutants were allocated based on land under cultivation and areas currently forested.³ Current water related discharges from sources studied are shown in Table I-2.

While the mechanism for computing the mining, manufacturing, and agriculture and forestry pollutants is relatively simplistic, other methods investigated proved to be less satisfactory. The General Point Source File⁴ was found to lack adequate data on flows and quantities discharged while an investigation of two draft reports on agricultural pollutants showed much lower values than those used.⁵

Best Practicable Technology (BPT) and Best Available Technology (BAT), defined by EPA pursuant to the 1972 Federal Water Pollution Control Act Amendments⁶ were applied to public waste treatment sources assuming removal achieved by treatment processes requested in the Needs Survey. For mining and manufacturing, effects of BPT and BAT were estimated for all sources based on the expected impact of EPA effluent guidelines which are still being promulgated. For 1985 growth alternatives, BAT was assumed for industry.

The results of the calculations discussed above lead to the development of two sets of pollution estimates: 1973 activities with existing in-place controls, and 1973 activities with controls required for the future.

1

Office of Research and Development, The Economics of a Clean Environment, EPA, Washington, D.C., 1975.

2

U.S. Bureau of the Census, County Business Patterns, U.S. Government Printing Office, Washington, D.C., 1972.

3

U.S. Bureau of the Census, City and County Data Book, U.S. Government Printing Office, Washington, D.C., 1970.

4

Office of Water Program Operations, General Point Source (Computer) File, EPA, Washington, D.C., 1975.

5

Midwest Research Institute, "Cost and Effectiveness of Control of Pollution from Selected Nonpoint Sources," National Commission on Water Quality, Washington, D.C., 1975.

6

The Federal Water Pollution Control Act Amendments of 1972, P.L. 92-500.

Table I-2

TOTAL WATER POLLUTANTS DISCHARGED BY STATE AND SUB-STATE AREAS¹
 OLD WEST REGION
 1973
 (in million lbs. per year)

	<u>BOD</u>	<u>SS</u>	<u>Phosphates</u>
Old West Region ²	4,880.9	315,043.8	533.0
Montana			
Northeast	590.9	38,926.1	62.8
Southeast	552.1	36,442.4	59.1
West	144.1	10,719.4	15.6
State Total	1,287.1	86,087.9	137.5
Nebraska			
Central	370.7	24,195.2	43.1
East	130.3	2,721.1	12.6
Northeast	257.6	16,787.6	27.7
Southeast	110.2	6,399.1	13.4
West	170.5	11,207.5	18.0
State Total	1,039.3	61,310.5	114.8
North Dakota			
Northeast	153.6	9,548.1	16.1
Northwest	210.4	13,650.0	22.2
Southeast	214.3	14,010.0	22.4
Southwest	308.5	20,156.3	34.6
State Total	886.9	57,364.4	95.3
South Dakota			
Northeast	237.0	15,247.3	25.5
Southeast	150.9	9,268.7	17.2
West	552.8	37,424.7	59.5
State Total	940.8	61,940.7	102.2
Wyoming			
East	579.5	38,804.6	64.3
Northwest	59.9	3,892.9	6.2
Southwest	87.4	5,642.8	12.7
State Total	726.8	48,340.3	83.2
United States	45,429.4	1,670,486.0	4,457.1

¹ With current controls.

² May not add due to rounding.

Source: National Bureau of Economic Research, "Table of Water Effluent Discharges by SIC", 1975; U.S. Bureau of Census, County Business Patterns, U.S. Government Printing Office, Washington, D.C., 1972.

4.0 Public Costs

An investigation was made into the public and private investments which must be made to meet the environmental standards considered in this analysis. The investments are generally considered to be of two types; the initial investment in physical facilities (capital investment), and ongoing operations and maintenance cost. Using an assumption of the cost of capital and replacement life, it is possible to annualize the capital investment and combine it with the annual operations and maintenance cost to produce a total annual cost estimate. The costs reported in this report are capital investment and annual operations and maintenance costs.

Public environmental control costs arise from investments in sewage treatment facilities and in publicly operated solid-waste disposal facilities. Costs were estimated for sewage facilities using the Cost of Clean Environment model discussed earlier. The model includes only treatment facilities, interceptors, and collector costs. Solid waste disposal costs were estimated from the 1973 Cost of Clean Air including costs associated with disposal of both residential and commercial solid waste. Because of the potential inaccuracy in the estimate and its small magnitude compared to sewage costs, the solid waste estimate was omitted from the analysis as insignificant.

Combined sewer overflow costs resulting from storm waters were estimated independently from the Needs Survey (see Table I-3). Three of the five States in the Old West Region indicated a need for combined sewer overflow correction in the 1974 Needs Survey. An existing model¹ was used to determine independent estimates of capital and operations and maintenance costs required to provide storage and treatment for the 2 year-1 hour storm.² Private costs of control were not reported since the problems of estimation make it impossible to produce accurate data.

5.0 Future Pollutants and Costs

The next stage of the analysis was to estimate future pollution levels. Four future growth alternatives were used. The four alternatives are listed below (see Appendices F and G for a complete discussion):

- 1) Adjusted OBERS Baseline - This represents an update of the published OBERS series and does not reflect any large new energy developments beyond 1974.
- 2) Expected Baseline - This scenario takes into account the adjusted OBERS projection plus the "best estimate" of energy development in the Region.

1

E. Pechan and R. Luken, "Determining the Cost of Correcting Combined Sewer Overflow -- A National Assessment", Working Paper, 1975.

2

This is defined as the most severe storm of 1 hour duration that can be expected on the average every 2 years.

Table I-3

COMBINED SEWER OVERFLOW COSTS
 OLD WEST REGION AND NATION
 1974
 (in millions of 1973 dollars)

<u>Area</u>	<u>Number of Facilities</u>	<u>Need Survey Capital Cost</u>	<u>Model's Estimate Capital Cost</u>	<u>Model's Estimate Annual Operation and Maintenance Cost</u>
Old West Region	14	687	387	10
Montana	7	7	40	1
Nebraska	3	630	263	7
North Dakota	4	50	84	2
South Dakota	0	0	0	0
Wyoming	0	0	0	0
United States	919	31,076	23,197	612

Source: Office of Research and Development, The Economics of a Clean Environment, EPA, Washington, D.C., 1975.

- 3) Low Estimate Alternative - This scenario includes less energy development than the expected baseline projection.
- 4) High Estimate Alternative - This scenario assumes a higher rate of growth for energy development.

New growth between 1973 and 1985 will either result from expansion of existing facilities (which will require controls) or from new facilities at a control level required for new sources (New Source Performance Standards). These control levels approximate the SIP controls for air pollutants and BAT for water pollutants. Thus future pollution levels can be estimated by determining what current pollution would be with future projected control levels, and increasing this to account for expected growth in pollution generating activities under the various growth alternatives. In making these projections future residential population was obtained from the projections for each growth alternative. Industrial pollution projections were determined from the manufacturing and mining earnings projections made in constant dollars. Vehicle miles travel data were obtained from the U.S. Department of Transportation.¹ The projected data were adjusted to the appropriate population level by assuming a constant vehicle miles traveled (VMT) per capita relationship. Finally, the public utility calculations were based on the OBERS historic and adjusted baseline alternatives. This growth was supplemented in the other alternatives by data estimated for the specific new energy development facilities anticipated in the Old West Region (see Appendix G).

Energy-related developments in the Region will generate both air and water pollutants considered in this study. Table I-4 illustrates the pollutants associated with typical size facilities.

a) Air Pollutants

Air residual estimates are based on the following assumptions and could change significantly if these assumptions are violated:

- 1) Coal electrification and gasification plants will employ required particulate reduction technology as well as SO_x scrubber systems with 90 percent removal efficiencies. No special NO_x reduction technologies are employed. The latter is not needed to meet current Federal standards.
- 2) Coal gasification plants will purchase electrical power rather than generate it on site.
- 3) Wastewater containing ammonia and hydrogen cyanide will be treated and ponded rather than incinerated, thus eliminating additional particulate discharges.

¹

Department of Program Management, "1974 Interstate Cost Estimates", U.S. Department of Transportation, Washington, D.C., 1974.

Table I-4
 POLLUTANTS FROM ENERGY RELATED FACILITIES
 OLD WEST REGION
 1985
 (in tons per year)

Process and Plant Size	POLLUTANTS				
	Partic.	SOx	NOx	BOD ¹	SS ¹
Coal fired steam turbine 1000 megawatts	2,200	5,100	25,000	-0-	-0-
Coal gasification, Lurgi 250 million cubic feet per day	300	950	12,300	-0-	-0-
Coal mining, surface 10 million tons per year	146	13	-0-	-0-	-0-

¹ Data for energy related water pollutants assumes the elimination of all discharges as mandated in PL 92-500.

Source: University of Oklahoma, "Energy Alternatives: A Comparative Analysis", Council on Environmental Quality, Washington, D.C., 1974.

- 4) Coal gasification plants will incinerate carbonyl sulfide, carbon disulfide and hydrogen sulfide into SO₂.

b) Water Residuals

Water pollution estimates are based on the following assumptions, and could alter significantly if these assumptions are violated:

- 1) Coal gasification plants will install pollution reduction technologies similar to advanced coking plants which eliminates most of the phenols, oils, and tars and ammonia.
- 2) Coal electrification plants will install cooling towers.

In most of the conversion processes, there will be no aqueous outfalls (i.e., dumping of waste water into surface water) directly from the process. The two exceptions are possibly power plant blow-down and wastewater pumped out of a pit mine. The wastewater from the gasification process will be pumped into lined evaporation ponds.

6.0 Relative Pollution Impacts

Relative 1985 pollution emissions for alternative futures are shown in Tables I-5 and I-6, for selected air and water residuals. The table presents data for each State and the five sub-State areas expected to undergo significant energy developments.

An analysis of the results of Tables I-5 and I-6 lead to the following general conclusions:

- 1) Changes in relative emissions are more pronounced at the sub-State area level than at the State level since the new growth represents large concentrated sources of emissions.
- 2) Relative water emissions will not change significantly under any development alternative.
- 3) Significant increases of NO_x will occur in a number of areas. SO_x may increase in one sub-State area due to a lack of significant current baseline emissions.

If the emissions were analyzed on a county-by-county basis, more significant relative increases would be apparent due to the large size of proposed new energy sources relative to existing sources in a small geographic area.

Table I-5

RELATIVE RESIDUAL EMISSIONS FROM ALTERNATIVE GROWTH PROJECTIONS
OLD WEST REGION

1985
(1973 emissions = 100)

<u>State Area</u>	<u>Adjusted OBERS Baseline</u>	<u>Expected Baseline</u>	<u>High Estimate Alternative</u>	<u>Low Estimate Alternative</u>
Montana				
Particulate	55	58	61	57
SO _x	10	12	13	11
NO _x	81	102	123	91
BOD	98	98	98	99
SS	97	97	97	97
Nebraska				
Particulate	31	34	37	33
SO _x	49	60	68	56
NO _x	67	95	104	85
BOD	91	91	91	91
SS	100	100	100	100
North Dakota				
Particulate	29	38	42	35
SO _x	34	53	57	46
NO _x	78	156	179	122
BOD	98	98	98	98
SS	100	100	100	100
South Dakota				
Particulate	33	35	39	35
SO _x	58	74	104	74
NO _x	44	65	108	65
BOD	99	99	99	99
SS	98	98	98	98
Wyoming				
Particulate	52	79	87	64
SO _x	29	62	72	50
NO _x	83	191	231	152
BOD	99	99	99	99
SS	98	98	98	98

Source: See Table XI-1.

Table I-6

RELATIVE RESIDUAL EMISSIONS FROM ALTERNATIVE
GROWTH PROJECTIONS
OLD WEST REGION - SUB-STATE AREAS
1985
(1973 emissions = 100)

<u>Selected Sub-State Area</u>	<u>Adjusted OBERS Baseline</u>	<u>Expected Baseline</u>	<u>High Estimate Alternative</u>	<u>Low Estimate Alternative</u>
Southeast Montana				
Particulate	50	55	58	53
SO _x	10	11	12	10
NO _x	98	127	161	114
Southwest North Dakota				
Particulate	23	41	46	34
SO _x	27	50	56	42
NO _x	101	244	286	182
Northeast South Dakota				
Particulate	74	80	91	80
SO _x	90	165	318	165
NO _x	37	108	251	108
Southwest Wyoming				
Particulate	49	85	94	69
SO _x	30	101	114	90
NO _x	151	360	406	313
East Wyoming				
Particulate	52	73	80	59
SO _x	28	45	54	33
NO _x	79	134	175	94

Source: See Table XI-1.

7.0 1973 and Future Air Pollution Emissions

Estimates of base year and future air pollutant discharges for the five States in the Region and five selected sub-State areas are shown in Tables I-7 through I-12. The relative changes from 1973 to 1985 represent the combined effects of two factors:

1) the decrease in emissions caused by imposition of new controls on existing sources, and 2) the increase in emissions caused by growth of activities producing pollution.

The results indicate that new energy related sources will account for a significant quantity of emissions in those States and sub-State areas receiving them. In other areas, pollutant emissions will decrease based on imposition of new controls. Particulate matter will show improvement in all States and sub-State areas under all growth projections. SOx will increase in some cases while NOx will often show a large increase, directly attributable to new energy sources.

8.0 1973 and Future Water Pollution Emissions and Public Costs

Tables I-13 through I-17 show base year and future water emissions and public costs by State. Costs listed under current control represent the replacement value of existing facilities and associated annual operations and maintenance costs.

The results indicate that additional growth will have minimal effect on the water pollutants studied. Since BAT for energy related facilities permits no discharge of pollutants including BOD and SS, these emissions will decrease to zero under all growth scenarios.² Regardless of the degree of new abatement projects though, water pollution would not be affected significantly under any reasonable alternative level of growth since the Region is dominated by non-point (e.g., agriculture) sources of pollution. This would be shown by ambient environmental analysis which is beyond the scope of this effort.

New public costs under any growth alternative will be high, representing almost half of the replacement value of current facilities. However, the incremental costs of the various growth alternatives will be minor. The majority of public investment will be required to meet 1983 standards of the 1972 Federal Water Pollution Control Act Amendments for the existing population. Some of this investment will be eligible for Federal grant assistance (up to 75 percent for individually approved projects). However, unless the allocation formula is changed or significant new funds are appropriated by Congress, it is unlikely that Federal support will be forthcoming on most of the required facilities.

¹ Assumes full compliance with Federal and State air pollution control laws and the State Air Quality Maintenance Plans.

² Assumes full compliance with Federal and State water pollution control laws.

Table I-7
CURRENT AND FUTURE AIR POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS
MONTANA
1973 AND 1985
(in tons)

Residual Source	1973				1985 ¹										
	Current Control		Adjusted OERS		Expected Baseline		High Estimate Alternative		Low Estimate Alternative						
	Partic.	SOx	NOx	NOx	Partic.	SOx	NOx	NOx	Partic.	SOx	NOx				
Industry	255,877	841,871	103,839	107,308	75,883	117,097	114,668	81,087	125,129	119,484	84,493	130,384	112,033	79,224	122,253
Residential	1,296	1,508	1,592	1,314	1,529	1,614	1,343	1,562	1,649	1,400	1,629	1,719	1,332	1,550	1,637
Transportation	6,694	5,644	69,559	7,578	6,389	17,480	7,745	6,530	17,866	8,086	6,818	18,654	7,685	6,479	15,874
Energy Related	3,941	9,011	6,302	594	2,149	7,909	4,694	9,449	41,909	8,294	16,649	76,909	2,894	5,949	24,409
Commercial	1,069	2,880	2,295	226	715	1,626	199	627	1,427	207	653	1,487	197	622	1,416
Other	84,176	346	16,213	76,143	346	16,213	76,143	346	16,213	76,143	346	16,213	76,143	346	16,213
Total	353,053	861,260	199,800	193,163	87,011	161,939	204,792	99,601	204,193	213,614	110,588	245,366	200,284	94,170	181,802
	SOUTHEAST MONTANA														

SOUTHEAST MONTANA

Residual Source	1973				1985 ¹										
	Current Control		Adjusted OERS		Expected Baseline		High Estimate Alternative		Low Estimate Alternative						
	Partic.	SOx	Partic.	NOx	Partic.	NOx	Partic.	SOx	Partic.	NOx					
	SOx	NOx	SOx	NOx	SOx	NOx	SOx	NOx	SOx	NOx					
Industry	218,465	627,144	96,347	91,592	56,290	108,665	97,874	60,151	116,118	101,985	62,677	120,994	95,625	58,768	113,450
Residential	281	392	453	285	397	459	291	406	469	303	423	489	289	403	466
Transportation	2,093	1,751	21,517	2,369	1,982	5,408	2,422	2,026	5,527	2,248	1,881	5,130	2,403	2,010	4,911
Energy Related	3,942	9,011	6,303	569	2,061	7,599	4,569	9,061	37,599	8,169	9,661	76,599	2,769	5,561	24,099
Commercial	367	1,013	790	67	216	481	68	221	491	71	230	512	68	219	487
Other	16,060	52	3,062	14,464	52	3,062	14,464	52	3,062	14,464	52	3,062	14,464	52	3,062
Total	241,148	639,363	128,472	109,346	60,998	125,674	119,688	71,917	163,266	127,240	74,924	206,786	115,618	67,013	146,475

National average of State Implementation Plans.

Source: State and County Emissions Reports, National Emissions Data System, EPA, Research Triangle Park, N.C., 1975; Office of Planning and Evaluation, The Cost of Clean Air, EPA, Washington, D.C. 1973.

Table I-8

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2

Source: See Table I-7.

Table I-9
CURRENT AND FUTURE AIR POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS
NORTH DAKOTA
1973 AND 1985
(in tons)

Residual Source	1973			1985 ¹											
	Current Control		NOx	Adjusted OBERS Baseline		Expected Baseline		High Estimate Alternative		Low Estimate Alternative					
	Partic.	SOx		Partic.	SOx	Partic.	SOx	Partic.	SOx	Partic.	SOx				
Industry	39,455	12,813	3,795	9,693	3,003	4,272	10,624	3,291	4,682	11,599	3,593	5,111	10,225	3,168	4,506
Residential	2,629	4,674	1,537	2,582	4,590	1,509	2,718	4,833	1,589	2,834	5,039	1,657	2,650	4,711	1,549
Transportation	5,095	3,175	50,397	5,813	3,623	12,766	6,124	3,816	13,448	6,394	3,985	14,041	5,976	3,724	13,124
Energy Related	34,132	56,438	40,585	5,865	15,355	58,118	12,365	29,155	133,118	13,965	32,055	155,218	9,965	24,055	100,818
Commercial	3,407	2,351	1,879	602	485	111	639	511	117	661	533	122	618	498	114
Other	218	245	79	25	249	79	25	245	79	25	245	79	25	245	79
Total	84,936	79,696	98,272	24,580	27,305	76,855	32,495	41,851	153,033	35,478	45,450	176,228	29,459	36,401	120,193
SOUTHWEST NORTH DAKOTA															
Residual Source	1973			1985 ¹											
	Current Control		NOx	Adjusted OBERS Baseline		Expected Baseline		High Estimate Alternative		Low Estimate Alternative					
	Partic.	SOx		Partic.	SOx	Partic.	SOx	Partic.	SOx	Partic.	SOx				
Industry	5,959	5,343	1,781	1,460	1,253	1,468	1,600	1,373	1,609	1,746	1,499	1,757	1,540	1,322	1,549
Residential	888	1,152	486	909	1,180	498	1,070	1,388	586	1,212	1,572	663	986	1,279	539
Transportation	1,338	809	13,419	1,527	923	3,399	1,608	972	3,581	1,679	1,015	3,739	1,569	949	3,494
Energy Related	25,162	53,650	36,912	4,549	13,251	47,986	11,049	27,051	122,986	12,649	29,951	145,086	8,649	21,951	90,686
Commercial	101	272	317	18	58	195	22	69	229	25	78	259	20	63	216
Other	115	8	11	104	8	11	104	8	11	104	8	11	104	8	11
Total	37,563	61,234	52,926	8,567	16,673	53,557	15,453	30,861	129,002	17,415	34,123	151,515	12,868	25,572	96,495

National average of State Implementation Plans.

Source: See Table I-7

Table 1-10
CURRENT AND FUTURE AIR POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS
SOUTH DAKOTA
1973 and 1985
(in tons)

Residual Source	1973				1985															
	Current Control				Adjusted OBERS Baseline				Expected Baseline				High				Low			
	Partic.		NO _x		Partic.		NO _x		Partic.		NO _x		Partic.		NO _x		Partic.		NO _x	
	SO _x		SO _x		SO _x		SO _x		SO _x		SO _x		SO _x		SO _x		SO _x		SO _x	
Industry	45,748	4,350	1,754		10,584	1,053	2,679	10,601	1,054	2,684	10,630	1,057	2,691	10,596	1,054	2,682				
Residential	1,296	2,713	1,443		1,445	3,025	1,609	1,453	3,041	1,618	1,471	3,079	1,638	1,452	3,039	1,616				
Transportation	5,137	2,334	43,429		6,853	3,114	12,861	6,889	3,130	12,929	6,981	3,172	13,102	6,889	3,130	12,929				
Energy Related	3,022	3,640	3,568		446	851	4,389	1,446	3,051	15,389	3,346	7,451	37,389	1,446	3,051	15,389				
Commercial	646	1,440	1,512		129	337	1,011	130	339	1,017	132	343	1,029	130	338	1,016				
Other	3,779	187	932		501	187	816	501	187	816	501	187	816	501	187	816				
Total	59,628	14,664	52,638		19,958	8,567	23,365	21,026	10,802	34,453	23,061	15,289	56,655	21,014	10,799	34,448				

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¹ National average of State Implementation Plans.

Source: See Table I-7.

Table 10.10

CURRENT AND FUTURE AIR POLLUTANTS FROM ALTERNATIVE SCENARIO PROJECTIONS

1974
1975 and 1985
(40,000)

Residual Source	1973				1975				1976				
	Current Control		Adjusted OBEPS Baseline		Expected Baseline		Estimate Alternative		Estimate Alternative		Estimate Alternative		
	Partic.	SOx	NOx	Partic.	SOx	NOx	Partic.	SOx	NOx	Partic.	SOx	NOx	
Industry	34,711	24,005	15,763	25,669	2,807	15,154	37,034	21,964	41,074	24,249	28,368	3,102	16,748
Residential	576	423	827	672	494	965	774	568	1,111	619	702	516	1,008
Transportation	4,162	4,570	45,129	5,415	5,346	13,032	6,514	7,152	15,676	7,088	5,902	5,480	14,204
Energy Related	37,718	40,151	37,076	6,445	10,864	52,796	17,245	31,364	153,596	19,745	37,264	14,045	24,764
Commercial	271	928	1,730	57	228	1,211	66	262	1,394	72	285	60	236
Other	9,537	114	1,818	6,695	114	1,818	6,695	114	1,818	6,695	114	1,818	1,818
Total	86,975	70,191	102,334	44,953	20,453	84,976	68,328	43,510	195,459	75,517	50,657	35,214	155,689

1 National average of State Implementation Plans.

Source: See Table I-7.

Table 1-12
CURRENT AND FUTURE AIR POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS
SOUTHWEST WINGING
1973 AND 1985
(in tons)

Residual Source	1973			1985 ¹											
	Current Control		Adjusted OBERS Baseline Partic. SOx NOx	Expected Baseline Partic. SOx NOx		High Estimate Alternative Partic. SOx NOx		Low Estimate Alternative Partic. SOx NOx							
	Partic. SOx	NOx		Partic. SOx	NOx	Partic. SOx	NOx	Partic. SOx	NOx						
Industry	18,412	1,100	6,193	13,617	129	5,357	19,646	186	8,594	21,788	206	9,532	15,048	142	6,583
Residential	139	148	99	203	216	145	273	291	285	278	296	198	169	180	121
Transportation	577	592	6,633	751	770	1,316	903	926	2,305	983	1,008	2,509	818	839	2,089
Energy Related	16,461	18,521	15,965	2,805	4,997	22,670	9,405	19,297	93,470	10,505	21,797	105,870	8,505	17,197	82,270
Commercial	30	102	193	7	31	169	10	41	228	10	42	232	6	26	141
Other	642	12	108	451	12	108	451	12	108	451	12	108	451	12	108
Total	36,261	20,475	29,191	17,834	6,155	30,965	30,688	20,753	104,990	34,015	23,361	118,449	24,997	18,396	91,312

EAST WYOMING

Residual Source	1973			1985 ¹											
	Current Control			Adjusted OBERS Baseline		Expected Baseline		High Estimate Alternative		Low Estimate Alternative					
	Partic.	SOx	NOx	Partic.	SOx	NOx	Partic.	SOx	NOx	Partic.	SOx	NOx			
Industry	15,140	21,825	8,725	11,197	2,563	8,392	16,154	3,697	12,108	17,916	4,100	13,429	12,374	2,832	9,275
Residential	348	227	609	388	253	680	442	288	773	497	463	870	412	269	722
Transportation	3,154	3,240	31,280	4,103	4,215	9,034	4,936	5,071	10,867	5,371	5,518	11,826	4,472	4,594	9,847
Energy Related	21,257	21,630	21,111	3,714	5,984	30,738	7,914	12,184	60,738	9,314	15,684	85,538	5,614	7,684	38,988
Commercial	635	1,773	2,776	127	415	1,859	145	472	2,116	163	531	2,379	135	441	1,974
Other	7,926	47	1,443	5,564	47	1,443	5,564	47	1,443	5,564	47	1,443	47	1,443	
Total	48,460	48,742	65,944	25,093	13,477	52,146	35,155	21,759	88,045	38,825	26,343	115,485	28,571	15,867	62,249

National average of State Implementation Plans.

Source: See Table I-7

Table I-13

CURRENT AND FUTURE WATER POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS

MONTANA

1973 AND 1985

(in millions of lbs.)

Residual Source	1973		1985 ¹			
	Current Control BOD SS	Adjusted OBERS Baseline BOD SS	Expected Baseline BOD SS	High Estimate Alternate BOD SS	Low Estimate Alternate BOD SS	
Municipal	7.6	11.9	6.8	7.4	6.9	7.5
Industrial	21.6	2,271.9	1.9	77.8	2.1	83.2
Agriculture and Forestry	1,257.8	83,803.6	1,257.8	83,803.4	1,257.8	83,803.4
Energy Related	.1	.5	-0-	-0-	-0-	-0-
Total ²	1,287.1	86,087.9	1,266.5	83,888.6	1,266.8	83,898.0
				1,267.2	83,898.0	1,266.7 83,892.1

PUBLIC COSTS

(in millions of 1973 dollars)

Expenditure Type	Current Control	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternate	Low Estimate Alternate
Municipal	190.3	81.1	82.9	87.1	82.3
Capital					
Operational and Maintenance	4.1	2.5	2.5	2.7	2.5

¹ Assuming the installation of "the best available technology economically feasible".² May not add due to rounding.

Source: Office of Water Program Operations, 1974 Needs Survey, EPA, Washington, D.C., 1975; National Bureau of Economic Research, "Table of Water Effluent Discharges by SIC", 1975; Hittman Associates, Environmental Impact, Efficiency, and Cost of Energy Supply and End Use, Council on Environmental Quality, 1974; The Economics of Clean Water-1973, EPA, Washington, D.C., 1973; The Cost of a Clean Environment-1975, EPA, Washington, D.C., 1975; Economic Analysis of Effluent Guidelines, Steam Electric Power Plants, EPA, Washington, D.C., 1974.

Table I-14
CURRENT AND FUTURE WATER POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS
NEBRASKA
1973 AND 1985
(in millions of lbs.)

Residual Source	1973		1985 ¹							
	Current Control		Adjusted		Expected		High Estimate		Low Estimate	
	BOD	SS	OBERS Baseline		Baseline		Alternative		Alternative	
			BOD	SS	BOD	SS	BOD	SS	BOD	SS
Municipal	65.4	54.8	22.8	24.6	22.9	24.8	23.0	24.9	22.8	24.7
Industrial	57.2	206.7	6.6	8.9	6.6	9.0	6.6	9.0	6.6	9.0
Agriculture and Forestry	916.6	61,029.8	916.6	61,029.8	916.6	61,029.8	916.6	61,029.8	916.6	61,029.8
Energy Related	.1	19.2	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total ²	1,039.3	61,310.5	946.0	61,063.3	946.1	61,063.6	946.2	61,063.7	946.0	61,063.5

PUBLIC COSTS
(in millions of 1973 dollars)

Expenditure Type	Current Control	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternative	Low Estimate Alternative
Municipal Capital	693.7	391.5	393.4	395.8	392.3
Operational and Maintenance	14.4	9.0	9.1	9.1	9.1

1 Assuming the installation of "the best available technology economically feasible".
2

May not add due to rounding.

Source: See Table I-13.

Table I-15
CURRENT AND FUTURE WATER POLLUTANTS FROM ALTERNATIVE GROWTH PROJECTIONS
NORTH DAKOTA
1973 AND 1985
(in millions of lbs.)

Residual Source	1973		1985 ¹							
	Current Control		Adjusted		Expected		High Estimate		Low Estimate	
	BOD	SS	OBERS	Baseline	BOD	SS	BOD	SS	BOD	SS
Municipal	21.8	23.6	6.8	10.0	7.1	10.5	7.4	11.0	6.9	10.3
Industrial	5.6	117.3	.8	6.0	.8	6.5	.9	7.1	.8	6.3
Agriculture and Forestry	859.4	57,213.4	859.4	57,213.4	859.4	57,213.4	859.4	57,213.4	859.4	57,213.4
Energy Related	.1	9.9	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total ²	886.9	57,364.4	867.3	57,229.4	867.6	57,230.4	868.0	57,231.5	867.4	57,230.0

PUBLIC COSTS
(in millions of 1973 dollars)

Expenditure Type	Current Control	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternative	Low Estimate Alternative
Municipal Capital	167.0	89.0	93.8	97.9	91.4
Operational and Maintenance	3.1	2.8	3.0	3.1	2.9

¹ Assuming the installation of "the best available technology economically feasible".

² May not add due to rounding.

Source: See Table I-13.

SOUTH DAKOTA
1973 AND 1985
(in millions of lbs.)

Residual Source	1973		1985 ¹							
	Current Control		Adjusted OBERS Baseline		Expected Baseline		High Estimate Alternative		Low Estimate Alternative	
	BOD	SS	BOD	SS	BOD	SS	BOD	SS	BOD	SS
Municipal	22.0	22.5	1.0	64.3	1.0	64.4	1.0	64.6	1.0	64.4
Industrial	6.8	1,194.9	16.4	17.1	16.5	17.2	16.7	17.4	16.5	17.1
Agriculture and Forestry	912.0	60,719.5	912.0	60,719.5	912.0	60,719.5	912.0	60,719.5	912.0	60,719.5
Energy Related	0.0	3.8	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total ²	940.8	61,940.7	929.4	60,800.9	925.5	60,801.1	927.7	60,801.5	929.5	60,801.0

PUBLIC COSTS
(in millions of 1973 dollars)

Expenditure Type	Current Control	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternative	Low Estimate Alternative
Municipal Capital	278.6	98.0	98.5	99.8	98.4
Operational and Maintenance	5.8	3.8	3.8	3.8	3.8

Assuming the installation of "the best available technology economically feasible".

2 May not add due to rounding.

Source: See Table I-13.

Table I-17
CURRENT AND FUTURE WATER DEMANDS BY ALTERNATIVE GROW PROJECTIONS
WYOMING
1973 AND 1985
(in millions of lbs.)

Residual Source	1973		1985							
	Current Control		Adjusted		Expected		High Estimate		Low Estimate	
	BOD	SS	BOD	SS	BOD	SS	BOD	SS	BOD	SS
Municipal	5.3	5.9	5.6	6.5	6.4	7.5	7.0	3.2	5.8	6.8
Industrial	11.6	1,070.1	1.2	43.3	1.8	52.5	2.0	69.3	1.4	47.9
Agriculture and Forestry	709.3	47,253.2	709.3	47,253.8	709.8	47,253.8	709.3	47,253.8	709.3	47,253.8
Energy Related	.1	10.4	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total ²	726.8	48,340.3	716.6	47,303.6	718.0	47,323.8	718.8	47,331.3	717.0	47,308.5

PUBLIC COSTS
(in millions of 1973 dollars)

Expenditure Type	Current Control	Adjusted OBERS Baseline	Expected Baseline	High Estimate Alternative	Low Estimate Alternative
Municipal	103.5	34.9	40.2	43.8	36.5
Capital				1.0	.9
Operational and Maintenance	2.3	.8	1.0		

¹ Assuming the installation of "the best available technology economically feasible".

² May not add due to rounding.

Source: See Table I-13.

APPENDIX J

COMMUNITY FACILITY

REQUIREMENTS IN MAJOR

ENERGY DEVELOPMENT SUB-STATE AREAS

1.0 Introduction

This appendix provides an estimate of community facilities requirements needed between 1975 and 1985 to accommodate increased populations in the major energy development areas of the Old West Region. An estimate of public capital costs to accommodate these persons is provided.

2.0 Population to be Accommodated

As Chapter X and Appendices F and G indicate, major population increases as a result of energy-related developments are projected to occur in Southeast Montana, Southwest North Dakota, and East and Southwest Wyoming. The adjusted OBERS baseline projections showed a continuation of past trends to 1985 without consideration of energy-related developments beyond 1974. Table J-1 shows the population increases that need to be accommodated between 1975 and 1980 and between 1975 and 1985 in these four sub-State areas above and beyond the adjusted OBERS baseline projections -- that is, population increases associated largely with energy-related developments. For example, in the expected baseline projection, about 106 thousand persons will have to be accommodated in the four sub-State areas in 1985 above and beyond what was expected in the adjusted OBERS projections. This is the "best estimate" of the additional 1985 population that will need to be accommodated in these areas as a result of energy-related developments.

3.0 Community Facilities Requirements

This additional population will have to reside in new and/or existing communities. Schools, roads, recreation areas, hospitals and other public services will be required. Given 1) the expected location of most of the energy-related developments, 2) a general paucity of vacant, adequate housing in the Region and especially in these areas (see Chapter VII and Appendix C), and 3) the probable lack of other facilities and services in these areas, it is expected that substantial amounts of new or improved community facilities will be needed to accommodate expected population increases. Tables J-2 through J-5 provide an estimate of expected capital costs assuming the need for new or expanded facilities to accommodate these population increases.

Table J-2 provides an estimate of unit capital costs for community facilities to accommodate about 33 thousand persons in a new low density (5.5 person per acre) residential community (this density is typical of Region towns and cities). These cost estimates were adapted as shown from a prior study by Real Estate Research Corporation.¹ As indicated, in a planned low density community accommodating about 33 thousand persons, public capital costs for the facilities shown would amount to about \$75.8 million (in 1973 dollars). If unplanned sprawl were allowed to occur, these costs could rise to \$111.2 million.

¹ This approach provides a basis for determining the expected general range of public facility costs to accommodate projected population increases. Future analyses at the local level would provide more definitive and detailed cost estimates.

Table J-1

PROJECTED POPULATION INCREASES
IN SUB-STATE AREAS WITH MAJOR
ENERGY-RELATED DEVELOPMENTS
OLD WEST REGION
1975-1985
(in thousands of persons)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>
Montana Southeast	13	16	7	10	29	48
North Dakota Southwest	20	27	6	13	37	51
Wyoming East	35	41	11	18	60	82
Southwest	17	22	nil	nil	18	23
Total	85	106	24	41	144	204

Note: Estimates take into account only those sub-State areas with major population increases above the adjusted OBERS projections to 1980 and 1985. Population projection increases shown in this table represent what is expected to occur in mining-related development areas above and beyond adjusted OBERS population projections for 1980 and 1985 (see Appendix F and Chapter X).

Table 1-1
CAPITAL COST ESTIMATE OF
NEW LOW DENSITY RESIDENTIAL COMMUNITIES
(in thousands of 1973 dollars)

<u>Type of Cost</u>	<u>Low Density Planned</u>		<u>Low Density Sprawl</u>	
	<u>Gov't.</u>	<u>Private</u>	<u>Gov't.</u>	<u>Private</u>
Residential	0	318,219	0	320,400
Open Space/Recreation	1,781	1,187	2,147	537
Schools ¹	45,382	0	45,381	0
Police, Fire, Library, Other Public	3,307	0	3,663	0
Hospitals ²	6,440	0	6,440	0
Churches	0	6,255	0	6,255
Solid Waste Collection and Disposal	77	180	77	180
Streets and Roads	6,754	27,016	22,779	15,186
Utilities	9,489	37,955	24,790	37,184
Land	2,569	23,123	5,908	23,631
Total	75,799	413,935	111,185	403,373

Note: Assumes 10,000 dwelling units, 75 percent single-family clustered units and 25 percent single-family conventional units, housing 33,000 persons including 11,000 school children in 6,000 acres.

¹ Source assumed about 20 percent of school investments would be private. This review assumes zero percent.

² Source assumed all hospitals would be privately financed. This review assumes 100 percent public funding of capital costs.

Source: Real Estate Research Corporation, The Costs of Sprawl: Detailed Cost Analysis, prepared for CEQ, HUD and EPA, U.S. Government Printing Office, Washington, D. C., April, 1974.

Table J-3

CAPITAL COST ESTIMATE
OF RETAIL COMMERCIAL FACILITIES TO
SERVE NEW RESIDENTIAL COMMUNITIES
(in thousands of 1973 dollars to serve 33,000 persons)

<u>Type of Cost</u>	<u>Community Strip</u> <u>(24 acres)</u>	<u>Community Center</u> <u>(17 acres)</u>
Public Total	734.8	476.7
Public Streets	(331.2)	(215.8)
Public Utilities	(349.1)	(225.4)
Public Land	(54.5)	(35.6)
Private Total	6,819.7	5,546.2
Total	7,554.5	6,022.9

Source: See Table J-2.

Table J-4

PER CAPITA PUBLIC CAPITAL
COST OF NEW COMMUNITIES
(in 1973 dollars)

	Low Density Planned			Low Density Sprawl		
	Residential	Commercial	Total	Residential	Commercial	Total
Open Space Recreation	53.97	0	53.97	65.06	0	65.06
Schools	1,375.21	0	1,375.21	1,375.18	0	1,375.18
Police, Fire, Library, Other Public	100.21	0	100.21	111.00	0	111.00
Hospitals	195.15	0	195.15	195.15	0	195.15
Solid Waste Collection and Disposal	2.33	0	2.33	2.33	0	2.33
Streets and Roads	204.67	6.54	211.21	690.27	10.04	700.31
Utilities	287.55	6.83	294.38	751.21	10.58	761.79
Land	77.85	1.08	78.93	179.03	1.65	180.68
Total	2,296.94	14.45	2,311.39	3,369.24	22.27	3,391.51

Source: See Tables J-2 and J-3.

Table J-5

PUBLIC CAPITAL COSTS FOR ACCOMMODATING POTENTIAL
NEW COMMUNITY POPULATIONS IN SUB-STATE AREAS
WITH MAJOR ENERGY-RELATED DEVELOPMENTS
OLD WEST REGION
1975-1985
(in millions of 1973 dollars)

<u>Area</u>	<u>Expected Baseline</u>		<u>Low Estimate Alternative</u>		<u>High Estimate Alternative</u>	
	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>
<u>Low Density Planned</u>						
Montana						
Southeast	30.0	37.0	16.2	23.1	67.0	110.9
North Dakota						
Southwest	46.2	62.4	13.9	30.0	85.5	117.9
Wyoming						
East	80.9	94.8	25.4	41.6	138.7	189.5
Southwest	39.3	50.8	nil	nil	41.6	53.2
Total	196.5	245.0	55.5	94.8	332.8	471.5

<u>Low Density Sprawl</u>						
<u>Area</u>						
Montana						
Southeast	44.1	54.3	23.7	33.9	98.4	162.8
North Dakota						
Southwest	67.8	91.6	20.3	44.1	125.5	173.0
Wyoming						
East	118.7	139.1	37.3	61.0	203.5	278.1
Southwest	57.7	74.6	nil	nil	61.0	78.0
Total	288.3	359.5	81.4	139.1	488.4	691.9

Source: See Tables J-1 and J-4.

Table J-3 shows some minor additional public capital cost requirements for retail commercial facilities, and Table J-4 combines the results for public costs shown in Tables J-2 and J-3 and puts these capital costs on a per capita basis. These results are then applied to the projected additional population requirements (Table J-1) to estimate the total public community capital costs needed to accommodate these persons. Table J-5, for example, indicates that for the expected baseline projection, and assuming low density planned communities, public community investment costs of about \$245 million (in 1973 dollars) would be needed between 1975 and 1985 to accommodate additional energy-related populations in the four sub-State areas. These capital costs would climb to about \$360 million (in 1973 dollars) if communities were allowed to grow in an unplanned manner resulting in sprawl. On the other hand, private residential and other private community costs would amount to over \$1.3 billion (in 1973) in either case.

APPENDIX K

LAND REQUIREMENTS

FOR COAL MINING AND

RELATED ENERGY DEVELOPMENTS

1.0 Introduction

This appendix provides an estimate of land requirements for coal strip-mining and related energy developments in the Region through 1985. Estimates are also provided on the expected 1) impact of these land requirements on agricultural output and 2) the cost for rehabilitating strip-mined lands.

2.0 Land Requirements

Tables K-1 through K-3 provide data on land requirements during the 1975-1985 period for coal strip mining, power and coal gasification plants and community facilities requirements associated with expected population increases in sub-State areas with major energy-related developments. Table K-4 aggregates these data (for the three alternative projections of possible energy development) to provide an estimate of total land requirements associated with these energy developments.

Tables K-1 through K-3 are self-explanatory with regard to assumptions on land requirements for various energy-related activities, data sources, and method of calculation. However, Table K-1 assumes careful, planned rehabilitation of strip-mined lands in the Region.¹

Table K-4 indicates, for example, that between 1975 and 1985 Region-wide land requirements for these various activities in the expected baseline projection amount to about 65 thousand acres. Of this, about 35 thousand acres would be of strip-mined lands (excluding over 5 thousand acres of rehabilitated land), about 11 thousand acres would be for power and gasification plant sitings, and about 19 thousand acres would be for community expansion or development. The range of possible land requirements between 1975 and 1985 was from about 40 thousand acres (low estimate alternative) to 108 thousand acres (high estimate alternative).

3.0 Impact on Agricultural Output

Using the results of Table K-4, and the assumptions as stated in Table K-5, it appears that the loss of lands to coal associated developments between now and 1985 would have some impact on agricultural output, but that this impact would be relatively small.² For example, the estimated value of livestock and grain losses as a result of land requirements would amount to less than \$600 thousand (1972 prices and production levels) in 1985 using the expected baseline projection. This compares with a total value of crop and livestock output in the Region of about \$8.7 billion in 1973.

¹ Although these calculations are based on land rehabilitation data for strip-mined lands provided by the Northern Great Plains Resource Program, a number of questions remain to be answered on the feasibility of rehabilitating certain types of land. In addition, there currently exists an institutional or legal issue. There are State laws, but no Federal laws to guide land reclamation activities. However, much of the expected strip mining is likely to occur on Federally-controlled lands.

² Again, this analysis is based on an averaging of data provided by the Northern Great Plains Resource Program study. Local variations will exist depending on type and sizes of farms, the kind of land and terrain, and the way in which particular mining units are developed.

Table K-1
LAND REQUIREMENTS FOR
COAL STRIP MINING
OLD WEST REGION
1975-1985
(in thousands of acres)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1975-1980	1975-1985	1975-1980	1975-1985	1975-1980	1975-1985
Montana						
Southeast						
Gross	4.4	11.9	3.5	8.8	6.0	16.9
Rehabilitated	0.0	1.8	0.0	1.5	0.0	2.1
Net	4.4	10.1	3.5	7.3	6.0	14.8
North Dakota						
Southwest						
Gross	2.3	7.0	1.9	5.4	2.6	9.2
Rehabilitated	0.0	0.9	0.0	0.8	0.0	1.0
Net	2.3	6.1	1.9	4.6	2.6	8.2
Wyoming						
East						
Gross	5.9	17.5	4.4	12.5	8.4	28.7
Rehabilitation	0.0	2.1	0.0	1.7	0.0	2.7
Net	5.9	15.4	4.4	10.8	8.4	26.0
Southwest						
Gross	1.6	4.4	1.3	3.8	1.6	4.7
Rehabilitation	0.0	0.6	0.0	0.5	0.0	0.6
Net	1.6	3.8	1.3	3.3	1.6	4.1
Total						
Gross	14.2	40.8	11.1	30.5	18.6	59.5
Rehabilitation	0.0	5.4	0.0	4.5	0.0	6.4
Net	14.2	35.4	11.1	26.0	18.6	53.1

Note: Assumes requires 25 acres per million tons of coal mined and 7.5 years for rehabilitation of land (5 years for cropland, 10 years for rangeland). Also assumes 1975 production in millions of tons as follows: Southeast Montana 21; Southwest North Dakota 11; East Wyoming 20; and Southwest Wyoming 6. Assumptions are applied to respective alternative coal production projections shown in Appendix G, Table G-1.

Source: Land requirements assumptions based on Northern Great Plains Resource Program (NGPRP), "Draft Report", September, 1974; and NGPRP, "Effects of Coal Development in the Northern Great Plains", April, 1975; and D. Freudenthal, et al., Coal Development Alternatives (State of Wyoming), 1974.

Table K-2
LAND REQUIREMENTS FOR NEW
POWER AND COAL GASIFICATION PLANTS
OLD WEST REGION
1975-1985
(in thousands of acres)

<u>Area</u>	<u>Expected Baseline</u>		<u>Low</u>		<u>High</u>	
	<u>1975-1980</u>	<u>1975-1985</u>	<u>Estimate</u>	<u>Alternative</u>	<u>Estimate</u>	<u>Alternative</u>
	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>
Montana						
Southeast	.66	1.36	.66	.66	1.36	3.76
Nebraska						
Central	.60	1.20	.60	.60	1.20	1.80
East	.60	.60	.00	.60	.60	.60
North Dakota						
Southwest	1.71	3.51	.85	1.71	2.51	4.91
South Dakota						
Northeast	.44	.44	.44	.44	.44	1.32
Wyoming						
East	.83	1.20	.00	.33	.88	2.70
Southwest	1.50	2.33	1.00	1.92	1.92	2.83
Total	6.34	10.64	3.55	6.26	8.91	17.92

Note: Assumes requires 1,000 acres per 1,000 megawatts for power plants and 1,000 acres for gasification plant producing 250 million cubic feet per day. Assumptions are applied to alternative development schedules of power and gasification plants as shown in Tables G-3 and G-4, respectively, of Appendix G.

Source: See Table K-1.

Table K-3

LAND REQUIREMENTS FOR EXPECTED POPULATION INCREASES
IN SUB-STATE AREAS WITH MAJOR ENERGY RELATED DEVELOPMENTS
1975-1985
(in thousands of acres)

Area	Expected Baseline		<u>Low</u> Estimate Alternative		<u>High</u> Estimate Alternative	
	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>
Montana						
Southeast	2.4	2.9	1.3	1.8	5.3	8.7
North Dakota						
Southwest	3.6	4.9	1.1	2.4	6.7	9.3
Wyoming						
East	6.4	7.5	2.0	3.3	10.9	14.9
Southwest	3.1	4.0	nil	nil	3.3	4.2
Total	15.5	19.3	4.4	7.5	26.2	37.1

Note: Assumes 5.5 persons per acre, as shown in explanation to Table J-2 of Appendix J. This is then applied to alternative expected population increases as shown in Table J-1 of Appendix J.

Table K-4

SUMMARY OF LAND REQUIREMENTS FOR
COAL ASSOCIATED DEVELOPMENTS
OLD WEST REGION
1975-1985
(in thousands of acres)

	Expected Baseline		<u>Low</u> Estimate Alternative		<u>High</u> Estimate Alternative	
	1975-1980	1975-1985	1975-1980	1975-1985	1975-1980	1975-1985
Montana						
Southeast						
Coal Mining (net)	4.4	10.1	3.5	7.3	6.0	14.8
Power and Gasification	0.7	1.4	0.7	0.7	1.4	3.8
Population Increases	2.4	2.9	1.3	1.8	5.3	8.7
Nebraska						
Central						
Power and Gasification	0.6	1.2	0.6	0.6	1.2	1.8
East						
Power and Gasification	0.6	0.6	0.0	0.6	0.6	0.6
North Dakota						
Southwest						
Coal Mining (net)	2.3	6.1	1.9	4.6	2.6	8.2
Power and Gasification	1.7	3.5	0.9	1.7	2.5	4.9
Population Increases	3.6	4.9	1.1	2.4	6.7	9.3
South Dakota						
Northeast						
Power and Gasification	0.4	0.4	0.4	0.4	0.4	1.3
Wyoming						
East						
Coal Mining (net)	5.9	15.4	4.4	10.8	8.4	26.0
Power and Gasification	0.8	1.2	0.0	0.3	0.9	2.7
Population Increases	6.4	7.5	2.0	3.3	10.9	14.9
Southwest						
Coal Mining (net)	1.6	3.8	1.3	3.3	1.6	4.1
Power and Gasification	1.5	2.3	1.0	1.9	1.9	2.8
Population Increases	3.1	4.0	0.0	0.0	3.3	4.2
Total	36.0	65.3	19.1	39.7	53.7	108.1

Note: Aggregated from Tables K-1, K-2 and K-3.

Table K-5

AGRICULTURAL LAND, PRODUCTION AND VALUE LOSSES AS A RESULT OF
COAL ASSOCIATED DEVELOPMENTS
OLD WEST REGION
1980 and 1985

	<u>Expected Baseline</u>		<u>Low</u> <u>Estimate Alternative</u>		<u>High</u> <u>Estimate Alternative</u>	
	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>
Amount of Land (in thousands of acres)	36.0	65.3	19.1	39.7	53.7	108.1
Rangeland	27.0	49.0	14.3	29.8	40.3	81.1
Cropland	7.2	13.0	3.8	7.9	10.7	21.6
Forestland	1.8	3.3	1.0	2.0	2.7	5.4
Production Losses (annual)						
Animal Unit Months (in thousands)	9.0	16.3	4.8	9.9	13.4	27.0
Bushels of Grain (in thousands)	216	390	114	237	321	648
Value of Losses (in millions on annual dollars)	.324	.585	.171	.355	.481	.972
Livestock (1972 prices)	.054	.098	.029	.059	.080	.162
Grain (1972 prices)	.270	.487	.142	.296	.401	.810

Note: Assumes 75 percent of land in rangeland, 20 percent cropland, and 5 percent forestland; rangeland can accommodate one animal-unit-month (AUM) in 3 acres, and grain production (weighted wheat, barley, corn) will amount to 30 bushels per acre; and value is \$6 per AUM and \$1.25 per bushel (weighted). Assumptions applied to appropriate land requirements as shown in Table K-4.

Source: Assumptions obtained from Northern Great Plains Resource Program Study (see Table K-1).

4.0 Cost of Land Rehabilitation

Table K-6 provides an estimate of land rehabilitation costs for strip-mined coal lands in the Region. The costs associated with such rehabilitation in the expected baseline projection amount to about \$51 million (in 1973 dollars) for the period 1975-1985. This assumes rehabilitation costs (as indicated) of \$1,250 per acre (in 1973 prices). These requirements for rehabilitation, it is assumed, would be placed on the private coal mining firms.

Table K-6

COST FOR REHABILITATION
OF STRIP-MINED COAL LANDS
OLD WEST REGION
1975-1985

(in millions of 1973 dollars)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>	<u>1975-1980</u>	<u>1975-1985</u>
Montana						
Southeast	5.5	14.9	4.4	11.0	7.5	21.1
North Dakota						
Southwest	2.9	8.8	2.4	6.8	3.3	11.5
Wyoming						
East	7.4	21.9	5.5	15.6	10.5	35.9
Southwest	2.0	5.5	1.6	4.8	2.0	5.9
Total	17.8	51.1	13.9	38.2	23.3	74.4

Note: Assumes rehabilitation cost of \$1,250 per acre in 1973 prices, or the average of \$700 and \$1,800 per acre. This assumption is applied to appropriate land requirements as shown in Table K-1.

Source: Rehabilitation cost assumption from Northern Great Plains Resource Program Study (see Table K-1).

APPENDIX L

ADDITIONAL WATER REQUIREMENTS

FOR

COAL ASSOCIATED DEVELOPMENTS

1.0 Introduction

Details are provided in this appendix of expected additional water requirements for coal mining and related energy and community developments in the Region through 1985. An estimate is also provided of the expected capital costs associated with providing these additional water supplies.

2.0 Additional Water Requirements

Tables L-1, L-2 and L-3, show annual water requirements in 1980 and 1985 for 1) expanded coal mining production, 2) new power and coal gasification plants and slurry pipelines, and 3) expected population increases in sub-State areas with major energy related developments, all occurring between 1975 and 1985. These requirements are presented for the three alternative projections (expected baseline, low estimate alternative and high estimate alternative) and aggregated in Tables L-4 and L-5 to provide an estimate of total additional annual water requirements for coal associated developments in the Region between 1975 and 1985. Table L-5 distinguishes between expected sources of supply (i.e., ground vs. surface water). These tables are self-explanatory with regard to assumptions, data sources, and method of calculation. Tables L-4 and L-5 indicate that for the expected baseline projection, an additional 299 thousand acre-feet of water (about 70 percent in surface water and 30 percent in ground water) will be needed in 1985 to accommodate these coal associated developments occurring between 1975 and 1985. The range of possible additional water requirements in 1985 are from 165 thousand acre-feet (low estimate alternative) to 514 thousand acre-feet (high estimate alternative).

3.0 Cost of Meeting Additional Water Requirements

In distributing water requirements between ground water and surface water sources, it is assumed that mining and slurry pipeline requirements will be met by developing ground water (some mines may build relatively small impoundments to catch surface runoff) supplies.¹ It is further assumed that the private sector would finance such developments. On the other hand, it is expected that electrical generating and gasification plants would totally utilize surface water supplies. For the purpose of this analysis it is assumed that community water requirements would be met by the development of ground water systems, and the public capital that is taken into account in Appendix J.²

¹ As indicated in Appendix G, the debate on the construction of any coal slurry pipeline continues. If construction occurs there is also the question of using surface versus ground water in the pipeline. This analysis, based on the sources noted (see Table L-5) assumes the use of ground water.

² The community facilities analysis, and related capital cost estimates, presented in Appendix J assumed the development of ground water systems. While the Region's population is relatively evenly split between the use of ground and surface waters (see Chapter IV, Table IV-5), this is because a large portion of the population resides near major rivers and reservoirs. Such sources are generally unavailable locally in the current and expected energy development areas.

Table L-1
ANNUAL WATER REQUIREMENTS
FOR EXPANDED COAL MINING PRODUCTION
OLD WEST REGION
1975-1985
(in thousands of acre-feet)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>
Montana						
Southeast	6.7	11.3	3.2	6.7	12.4	18.2
North Dakota						
Southwest	3.2	9.0	2.1	5.5	4.4	14.7
Wyoming						
East	12.7	20.7	6.9	13.8	21.9	43.7
Southwest	3.2	4.4	2.1	4.4	3.2	5.5
Total	25.8	45.4	14.3	30.4	41.9	82.1

Note: Assumes 230 acre-feet of water per million tons of coal mined. Assumption is applied to respective alternative coal production projections shown in Appendix G, Table G-1. Assumes production levels for 1975 as shown in Table K-1, Appendix K.

Source: Water requirement assumption from sources shown on Table K-1, Appendix K.

Table L-2

ANNUAL WATER REQUIREMENTS FOR
NEW POWER AND COAL GASIFICATION
PLANTS AND SLURRY PIPELINES
OLD WEST REGION
1975-1985
(in thousands of acre-feet)

<u>Area</u>	<u>Expected Baseline</u>		<u>Low Estimate Alternative</u>		<u>High Estimate Alternative</u>	
	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>	<u>1980</u>	<u>1985</u>
Montana						
Southeast						
Power Plants	13.2	27.2	13.2	13.2	27.2	55.2
Coal Gasification	0.0	0.0	0.0	0.0	0.0	17.0
Nebraska						
Central						
Power Plants	12.0	24.0	0.0	12.0	24.0	36.0
East						
Power Plants	12.0	12.0	0.0	12.0	12.0	12.0
North Dakota						
Southwest						
Power Plants	34.2	50.2	17.0	34.2	50.2	58.2
Coal Gasification	0.0	17.0	0.0	0.0	0.0	34.0
South Dakota						
Northeast						
Power Plants	8.8	8.8	8.8	8.8	8.8	26.4
Wyoming						
East						
Power Plants	16.6	24.0	0.0	6.6	17.6	34.0
Coal Gasification	0.0	0.0	0.0	0.0	0.0	17.0
Slurry Pipelines	0.0	20.0	0.0	0.0	0.0	40.0
Southwest						
Power Plants	30.0	46.6	20.0	38.3	38.3	56.6
Total	126.8	229.8	59.0	125.1	178.1	386.4

Note:

Assumes 20,000 acre-feet per year per 1000 megawatts power generator; 17,000 acre-feet per year for Lurgi process coal gasification plant producing 250 million cubic feet per day; and 20,000 acre-feet per year for slurry pipeline transporting 25 million tons of coal per year. Assumptions are applied to alternative development schedules of power and gasification plants as shown in Tables G-3 and G-4, respectively, of Appendix G.

Source: Water requirements assumptions from sources shown on Table K-1, Appendix K.

Table L-3

ANNUAL WATER REQUIREMENTS FOR EXPECTED
POPULATION INCREASES IN SUB-STATE AREAS
WITH MAJOR ENERGY RELATED DEVELOPMENTS
OLD WEST REGION
1975-1985
(in thousands of acre-feet)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1980	1985	1980	1985	1980	1985
Montana Southeast	2.9	3.6	1.6	2.2	6.5	10.7
North Dakota Southwest	4.7	6.3	1.8	3.1	8.5	11.6
Wyoming East	7.8	9.2	2.5	4.0	13.4	18.1
Southwest	3.8	4.9	nil	nil	4.0	5.2
Total	19.2	24.0	5.9	9.3	32.4	45.6

Note: Assumes 200 gallons per day per capita (or 0.00112 acre-feet per person-year)--includes personal, some industrial, services, etc. See Table IV-5 of Chapter IV in relation to population. This assumption is then applied to alternative expected population increases as shown in Table J-1 of Appendix J.

Table L-4

SUMMARY OF
 ADDITIONAL ANNUAL WATER REQUIREMENTS
 FOR COAL ASSOCIATED DEVELOPMENTS
 OLD WEST REGION
 1975-1985
 (in thousands of acre-feet)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1980	1985	1980	1985	1980	1985
Montana						
Southeast						
Mining	6.7	11.3	3.2	6.7	12.4	18.2
Plants	13.2	27.2	13.2	13.2	27.2	72.2
Population Increase	2.9	3.6	1.6	2.2	6.5	10.7
Subtotal	22.8	42.1	18.0	22.1	46.1	101.1
Nebraska						
Central						
Plants	12.0	24.0	0.0	12.0	24.0	36.0
East						
Plants	12.0	12.0	0.0	12.0	12.0	12.0
North Dakota						
Southwest						
Mining	3.2	9.0	2.1	5.5	4.4	14.7
Plants	34.2	67.2	17.0	34.2	50.2	92.2
Population Increase	4.7	6.3	1.8	3.1	8.5	11.6
Subtotal	42.1	82.5	20.9	42.8	63.1	118.5
South Dakota						
Northeast						
Plants	8.8	8.8	8.8	8.8	8.8	26.4
Wyoming						
East						
Mining	12.7	20.7	6.9	13.8	21.9	43.7
Plants	16.6	24.0	0.0	6.6	17.6	51.0
Pipelines	0.0	20.0	0.0	0.0	0.0	40.0
Population Increase	7.8	9.2	2.5	4.0	13.4	18.1
Subtotal	37.1	73.9	9.4	24.4	52.9	152.8
Southwest						
Mining	3.2	4.4	2.1	4.4	3.2	5.5
Plants	30.0	46.6	20.0	38.3	38.3	56.6
Population Increase	3.8	4.9	0.0	0.0	4.0	5.2
Subtotal	37.0	55.9	22.1	42.7	45.5	67.3
Total	171.8	299.2	79.2	164.8	252.4	514.1

Note: Aggregated from Tables L-1, L-2 and L-3.

SUMMARY OF DIVISION OF ADDITIONAL ANNUAL WATER REQUIREMENTS
BETWEEN GROUND WATER AND SURFACE WATER
FOR COAL ASSOCIATED DEVELOPMENTS
OLD WEST REGION
1975-1985
(in thousands of acre-feet)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1980	1985	1980	1985	1980	1985
Montana						
Southeast						
Ground Water	9.6	14.9	4.8	8.9	18.9	28.9
Surface Water	13.2	27.2	13.2	13.2	27.2	72.2
Nebraska						
Central						
Surface Water	12.0	24.0	0.0	12.0	24.0	36.0
East						
Surface Water	12.0	12.0	0.0	12.0	12.0	12.0
North Dakota						
Southwest						
Ground Water	7.9	15.3	3.9	8.6	12.9	26.3
Surface Water	34.2	67.2	17.0	34.2	50.2	92.2
South Dakota						
Northeast						
Surface Water	8.8	8.8	8.8	8.8	8.8	26.4
Wyoming						
East						
Ground Water	20.5	49.9	9.4	17.8	35.3	101.8
Surface Water	16.6	24.0	0.0	6.6	17.6	51.0
Southwest						
Ground Water	7.0	9.3	2.1	4.4	7.2	10.7
Surface Water	30.0	46.6	20.0	38.3	38.3	56.6
Total	171.8	299.2	79.2	164.8	252.4	514.1
Ground Water	45.0	89.4	20.2	39.7	74.3	167.7
Surface Water	126.8	209.8	59.0	125.1	178.1	346.4

Note: Assumes that 1) ground water will be used for mining and slurry pipeline developments sources; 2) surface waters will be used in power and coal gasification plant developments; and 3) population increases will use ground water sources entirely.

Source: Discussions with NGPRP study personnel and as indicated in text.

Table L-6 provides some estimates of capital costs for alternative surface water development schemes. These estimates are taken from the Northern Great Plains Resource Program study. While the variation is substantial, the schemes for transporting water without building new reservoirs average out at a capital cost of about \$1,000 (in 1973 dollars) per acre-foot of water. From Chapter IV and the NGPRP study it appears that sufficient surplus surface waters are available in the Region's reservoirs to meet requirements through 1985 as shown in Table L-5. The transport of such water would probably necessitate the construction of aqueducts and other related facilities. These could be accomplished by public or private agencies. Assuming, then, that surface waters are used in coal-related industrial activities in the amounts as shown in Table L-5, then for the expected baseline projection (see Table L-7) the public and/or private capital cost requirement (between 1975 and 1985) is estimated to be about \$210 million (in 1973 prices) to provide additionally needed surface waters by 1985.

Table L-6

ESTIMATED CAPITAL COST FOR ALTERNATIVE SURFACE
WATER DEVELOPMENT SCHEMES
NORTHERN GREAT PLAINS RESOURCE PROGRAM

<u>Alternative</u>	<u>Acre-feet of Water Provided</u>	<u>Investment Cost (in millions of 1973 dollars)</u>	<u>Investment Cost per Acre-foot of Water (in 1973 dollars)</u>
Base Forecast			
Choice 1	124,000 ¹	52.5	423.4
Choice 2	(No New Reservoirs) (No New Reservoirs)	218.3	1760.5
Most Probable Forecast			
Choice 1	730,000 ²	677.6	928.2
Choice 2	(No New Reservoirs) (Two New Reservoirs)	583.5	799.3
Extensive Development			
Choice 1	1,500,000 ³	1,279.8	853.2
Choice 2	(No New Reservoirs, Some Ground Water)	1,364.1	909.4

¹Six steam electric generating plants

²Eleven steam electric generating plants and sixteen gasification plants

³Eleven steam electric generating plants and forty-two gasification plants

Source: Northern Great Plains Resource Program, "Water Work Group Report", December 1974.
Excludes interest during construction.

Table L-7

ESTIMATED TOTAL PUBLIC CAPITAL COST FOR MEETING
 ADDITIONAL SURFACE WATER REQUIREMENTS FOR
 COAL ASSOCIATED DEVELOPMENTS
 OLD WEST REGION
 1975-1985
 (in millions of 1973 dollars)

Area	Expected Baseline		Low Estimate Alternative		High Estimate Alternative	
	1975-1980	1975-1985	1975-1980	1975-1985	1975-1980	1975-1985
Montana Southeast	13.2	27.2	13.2	13.2	27.2	72.2
Nebraska Central	12.0	24.0	0.0	12.0	24.0	36.0
East	12.0	12.0	0.0	12.0	12.0	12.0
North Dakota Southwest	34.2	67.2	17.0	34.2	50.2	92.2
South Dakota Northeast	8.8	8.8	8.8	8.8	8.8	26.4
Wyoming East	16.6	24.0	0.0	6.6	17.6	51.0
Southwest	30.0	46.6	20.0	38.3	38.3	56.6
Total	126.8	209.8	59.0	125.1	178.1	346.4

Note: Assumes all surface waters will be provided by aqueducts and pipelines at a capital cost of \$1,000 per acre-foot (see Table L-6), and applied to Table L-5.

APPENDIX M

COMPUTATION OF CAPITAL RATIOS

As described in the text, a major goal of this plan is to reduce the income gap. In order to generate additional regional income, additional capital investment -- both public and private -- must be made in the Old West Region. This appendix presents estimates of capital-output and other ratios which are used to compute the aggregate amount of capital required to generate the desired additional regional income.

Due to the paucity of investment data for the Region, it is not possible to develop unique incremental capital-output ratios (ICORs) for the Region. Consequently, it is necessary to use national ratios. The concept of ICOR used in this analysis is the increase in capital stock over a period of years, divided by the increase in the productive capacity, expressed as output per year, during the same period. Conceptually, the ICOR must be taken net not gross in both the numerator and denominator. Investment that merely replaces capital that is worn-out does not increase capacity. However, the figures are often taken gross because of the difficulty in estimating the economic life of investments.¹

Estimates of ICORS by sector for the U.S. are shown in Table M-1.² Based upon these sector estimates, the aggregate ICOR for the U.S. is estimated to be 3.1.³

The ICORs in Table M-1 relate to output as defined by the usual definition of "gross product" by sector.⁴ Unfortunately, no regional gross product data by sector are available. Hence, the ICORs in Table M-1 must be adjusted to an earnings base -- that is, to incremental capital-earnings ratios (ICERs). These adjustments are shown in Table M-2. The aggregate ICER for the U.S. is estimated to be 4.7, and for the Region the aggregate ICER is 5.2.

¹ See Everett E. Hagen, The Economics of Development, Richard D. Irwin Inc., Homewood, Illinois, 1968, Chapter 8.

² The methodology used is essentially equivalent to that used in the Development Plan, Four Corners Regional Commission, February 1972, Appendix E, p. 348.

³ This compares with an estimate of 2.6 -- based upon data through 1969 -- developed in the Four Corners Regional Plan. Klein estimates that the aggregate U.S. capital-output ratio for 1953 was 3.2 -- see Lawrence R. Klein, An Introduction to Econometrics, 1962, p. 195. Klein's estimate is based upon Kuznets' data for 1900 through 1953 -- see Simon Kuznets, "Long Term Changes in the National Income of the United States of America Since 1870," Income and Wealth, Series II, 1952.

⁴ Gross product by sector is the value added to production by sector (i.e., the total value of all payments owed to all factors of production, including wages, rents, interest, profits, depreciation and taxes; and excludes interfirm purchases of intermediate goods).

Table M-1

ESTIMATED U.S. INCREMENTAL CAPITAL-OUTPUT RATIOS
BY SECTOR

Sector	ICOR
Agriculture ¹	3.2
Mining ²	4.6
Contract Construction ³	1.0
Manufacturing ²	2.3
Transportation, Communications & Utilities ²	5.3
Wholesale and Retail Trade ³	1.0
Finance, Insurance & Real Estate ³	1.0
Services ³	1.0
Government ⁴	10.4
Weighted Average ⁵	3.1

¹ Estimated using the change in the annual real gross product of farm agriculture from 1955 to 1972, and the corresponding change in total farm physical assets in 1967 prices. No investment data are available for forestries and fisheries; however, farm output accounts for 92 percent of total agricultural output. The ICOR for agriculture is net of investment used to replace depreciated assets. If current prices are used the ICOR for agriculture would be 7.9. This reflects the relatively large inflationary increase in factor inputs (i.e., land, machinery, buildings, etc.) as compared to the inflationary increases in the prices of agriculture products. Source: Bureau of Economic Analysis, Survey of Current Business, U.S. Department of Commerce, and Economic Research Service, Balance Sheet of the Farming Sector, U.S. Department of Agriculture (various issues of each).

² The ICOR's for these sectors were estimated using the change in annual real gross product from 1957 to 1973, and the cumulated gross new capital and equipment expenditures during the corresponding period. The capital and equipment expenditures were deflated by a weighted average of the contract construction price index and the manufacturers durable goods price index. Source: Bureau of Economic Analysis, Survey of Current Business, U.S. Department of Commerce (various issues).

³ Estimated using the same methodology as described in footnote 2; however, it was not possible to disaggregate new capital and equipment expenditures by sector.

⁴ Estimated using the annual change in real gross product of the government sectors from 1957 to 1973, and the cumulated gross capital outlays by government (excluding expenditures for land and existing structures and expenditures for military hardware) during the corresponding time period. Capital outlays were deflated by a weighted average of the construction and manufacturers durable goods price indexes. Source: Bureau of Economic Analysis, Survey of Current Business, U.S. Department of Commerce and Bureau of the Census, Government Finance, U.S. Department of Commerce (various issues of each).

⁵ Weighted by U.S. gross product by sector for 1973.

Table M-2

ESTIMATED INCREMENTAL CAPITAL-EARNINGS RATIOS

	<u>ICER-U.S.</u> ¹
Agriculture	4.2
Mining	11.2
Contract Construction	1.2
Manufacturing	3.5
Transportation, Communications & Utilities	10.1
Wholesale and Retail Trade	1.6
Finance, Insurance & Real Estate	4.2
Services	1.2
Government	<u>11.5</u>
Weighted Average (U.S.) ²	4.7
Weighted Average (Old West Region) ³	5.2

¹ Based upon ICOR's (Table M-1) and ratios of gross product by sector to earnings by sector.

² Weighted by U.S. earnings by sector for 1973.

³ Weighted by Old West Region earnings by sector for 1972. If 1973 and 1974 data are used the ICER would be 5.1. However, the 1972 data are firmer estimates of earnings, and the more recent agriculture are still being revised.

Additional capital investment in the Region may increase income through additional employment and/or increased productivity of current employment. Given the relatively favorable level of employment relative to population existing in the Region, this plan suggests that much of the additional capital investment be directed toward increasing labor productivity (i.e., increasing average earnings per employee). That the productivity and earnings of existing employment will also increase because of additional capital investment can be shown from the following simple relationship:

- Assume a Cobb-Douglas production function in the Old West Region of the form:

$$Y = f(K, L) = AL^{\epsilon} K^{1-\epsilon}$$

also,

$$W = \frac{\partial Y}{\partial L} = \epsilon AL^{\epsilon-1} K^{1-\epsilon}$$

Where the wage (W) equals the marginal productivity of labor,

Where Y is output,

Where K is capital,

Where L is labor, and

Where A is a constant scale factor.

Consequently, with additional capital, K, introduced into the Region, the marginal productivity of labor will be increased (and thus wages will be increased). With respect to a change in K,

$$\Delta W = \epsilon AL^{\epsilon-1} \Delta K^{1-\epsilon}, \text{ and}$$

$$\frac{W + \Delta W}{W} = \left(\frac{K + \Delta K}{K} \right)^{1-\epsilon}$$

Based upon U.S. data for 1902-1952, ϵ has been estimated to be 0.844.¹ Thus, a 10 percent increase in capital, K, will increase average annual real wages by 1.5 percent.

The foregoing relationships are aggregative and are based upon historical data for the U.S. Their use in this plan is to suggest the overall magnitude on capital investment required to reduce the income gap in the

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See Economic Development Action Plan, Ozarks Regional Commission, December 1971, p. 75.

Region. Obviously, the ultimate impact of additional capital investment in the Region on 1) additional employment (e.g., in Indian areas) 2) increased employment participation rates, or 3) additional earnings per employee, will largely be a function of the nature of the actual investment projects and the economic structure of the Region.

Finally, Table M-3 provides a crude estimate of the proportion of public capital outlays to total capital outlays for selected years between 1968 and 1973. From this it appears that this ratio of public to total investment has been ranging between about 0.2 and 0.3.

Table M-3

RATIO OF PUBLIC INVESTMENT TO TOTAL INVESTMENT
OLD WEST REGION
1968-1973
(billions of current dollars except for ratios)

	1968	1970	1972	1973
1) U.S. Personal Consumption Expenditures ¹	535.8	617.6	729.0	805.2
2) U.S. Gross Private Domestic Investment ¹	126.5	136.3	179.3	209.4
3) Ratio: Line (2) divided by [Line (1) plus Line (2)]	0.19	0.18	0.20	0.21
4) Federal, State and Local Government Expenditures Less National Defense and International Relations Expenditures ²	198.7	248.7	318.2	353.0
5) Federal, State and Local Government Capital Outlays (net of Land and existing structures and less National Defense and International Relations Capital Outlays ²)	26.1	30.3	35.8	36.5
6) Ratio: Line (5) divided by Line (4)	0.13	0.12	0.11	0.10
7) Gross Regional Product ³	13.5	15.6	19.3	22.6
8) Total Regional Government Expenditures (Federal & State & Local) ⁴	5.4	6.4	7.4	7.9
9) Total Private Regional Expenditures [Line (7) minus Line (8)]	8.1	9.2	11.9	14.7
10) Estimated Regional Private Investment [Line (3) multiplied by Line (9)]	1.5	1.7	2.4	3.1
11) Estimated Regional Government Capital Outlays [Line (6) multiplied by Line (8)]	0.70	0.77	0.81	0.79
12) Ratio of Public Investment to Total Investment: Line 11 divided by [Line (10) plus Line (11)]	0.32	0.31	0.25	0.20

¹ Survey of Current Business, U.S. Department of Commerce

² For fiscal years, Governmental Finances, U.S. Department of Commerce

³ Obtained by multiplying U.S. gross domestic product to U.S. earnings ratio by regional earnings.

⁴ See Tables VI-1 and VI-2. Corrected for double counting of certain Federal transfers in State and Local allocations.

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BIBLIOGRAPHY

- American Hospital Association. Guide to the Health Care Field. Chicago, Illinois, American Hospital Association, 1974.
- American Hospital Association. Hospital Statistics. Chicago, Illinois, 1971 and 1974.
- American Map Company, Inc. Business Control Atlas of the United States and Canada: 1972 Edition. Final Reports, 1970 Federal Census and Canadian Census. New York, 1972.
- American Medical Association. Center for Health Services Research and Development. Distribution of Physicians in the U.S.; Regional, State, County and Metropolitan Areas. Chicago, Illinois, G. A. Roback, 1969, 1970, 1971 and 1972.
- Booz, Allen and Hamilton, Inc. A Procedures Manual For Assessing The Socioeconomic Impact of The Construction And Operation of Coal Utilization Facilities In The Old West Region For The Old West Regional Commission. Washington, D. C., 1974.
- Bowes, John E. and Stamm, Keith R. Development Priorities In The West River Region, North Dakota. A Social Attitude and Communication Analysis. The Communication Research Centers University and University of Washington Cooperating, 1974.
- Brown, Margaret; Killam Rosemary; Phillips, Clynn; and Powell, Beverly. Wyoming Data Book 1972. Laramie, Wyoming, University of Wyoming, College of Commerce and Industry, Division of Business and Economic Research, 1972.
- Bureau of National Affairs. Environmental Reports. Washington, D. C., 1975.
- Centaur Management Consultants, Inc. Evaluation of Impact of Tourism Recreation Projects For Economic Development Administration. Washington, D. C. (Prepared for Economic Development Administration, U. S. Department of Commerce), 1973.
- Centaur Management Consultants, Inc. Family Income Patterns In Tourism/ Recreation Areas. Washington, D. C. (Prepared for Economic Development Administration), 1974.
- Centaur Management Consultants, Inc. A Short-Range Action Plan For New England. Washington, D. C. (Prepared for New England Regional Commission), 1974.
- Centaur Management Consultants, Inc. Tourism Policy Study For Appalachia. Washington, D. C. (Prepared for Appalachian Regional Commission), 1975.

- Cohan, Mark E. and Gustafson, Neil C. Population Mobility in the Upper Midwest: Trends, Prospects and Policies. Minneapolis, Minnesota, Upper Midwest Council, 1974.
- Council on Environmental Quality. Energy Alternatives: A Comparative Analysis. Washington, D. C., 1974.
- Council on Environmental Quality. Energy Environment and the Electric Power. Washington, D. C., 1973.
- Council on Environmental Quality. The Fifth Annual Report. Washington, D. C., 1974.
- Council on Environmental Quality. The Fourth Annual Report. Washington, D. C., 1973.
- Dalsted, Norman L. and Leistritz, F. Larry. A Selected Bibliography on Coal-Energy Development of Particular Interest to the Western States. Agricultural Economics Misc. Report No. 16. Fargo, North Dakota, North Dakota State University, April, 1974.
- District III (South Dakota) Planning And Development. Economic Development: A Public Investment Plan For District III Planning And Development. 1975.
- Edison Electric Institute. Statistical Yearbook of the Electric Utility Industry. New York (various years).
- Federal Power Commission. "Historical Electric Sales Data", Washington, D. C., 1974. (Zeroxed)
- Federal Power Commission. Office of Power Statistics. "Ledger Printout", Washington, D. C., 1975. (Computer Printout)
- Fifth District Planning And Development Commission. Public Investment in South Dakota's Fifth Planning and Development District, by P. D. Bissell. Pierre, South Dakota, June, 1975.
- First Planning And Development District. Public Investment Plan for First Planning And Development District of South Dakota - F.Y. 1975.
- Foster Associates, Inc. Prospective Regional Markets for Coal Conversion Plant Products Projected to 1980 And 1985. Vol. 1: Market Analysis. Washington, D. C., 1974.
- Four Corners Regional Commission. Development Plan. Washington, D. C., U. S. Department of Commerce, 1972.

- Fourth Planning and Development District Commission (South Dakota).
District IV Public Investment Plan. (1975).
- Great Plains Agricultural Council Ad Hoc Committee on Effects of Energy.
Effects of Energy Development on Agriculture and Rural Communities
In The West. Billings, Montana, March, 1975.
- Hagen, Everett E. The Economics of Development. Homewood, Illinois:
Richard D. Irwin, Inc., 1968.
- Heady, E. O.; Mitchell, D. O; and Reynolds, T. M. Alternative Futures
for American Agricultural Structure, Policies, Income, Employment
and Exports: A Recursive Simulation. Card Report 56. Ames, Iowa,
Iowa State University, June, 1975.
- H. N. B. Consulting Engineers. A Study of The Economic Feasibility of
Providing Third Level Air Carrier Service in Wyoming. Cheyenne,
Wyoming (Prepared for the State of Wyoming Department of Economic
Planning And Development), 1974.
- Honkala, Rudolf A. Surface Mining and Mined Land Reclamation - A
Selected Bibliography. Washington, D. C. (Prepared for the Old West
Regional Commission), October, 1974.
- Intermountain Planners and Wirth. Berger Associates. Capital Facilities
Study Powder River Basin. (For Old West Regional Commission), 1974.
- Klein, Lawrence R. An Introduction to Econometrics. Englewood Cliffs,
New Jersey, Prentice-Hall, Inc., 1962.
- Kutak, Rock Cohn Campbell Garfinkle and Woodward. A Legal Study Relating
to Coal Development-Population Issues. Vol. I: Responding to
Rapid Population Growth. Omaha, Nebraska (For Old West Regional
Commission), 1974.
- Kuznets, Simon. Income and Wealth, Series II. "Long-Term Changes in the
National Income of the United States of America Since 1870".
Cambridge, Bowes and Bowes, 1952.
- Lamphear, Charles F. and Roesler, Theodore W. Impact Analysis of
Irrigated Agriculture on Nebraska's Economy 1967-1970. Nebraska
Economic and Business Report No. 7. Lincoln, Nebraska, The University
of Nebraska, 1974.
- Lobach, F. M. (pub.). Official Airline Guide - North American Edition.
July 1, 1975, Vol. 1, No. 19. New York, Reuben H. Donnelley, 1975.
- Luken, R. and Pechan, E. Determining the Cost of Correcting Combined
Sewer Overflow - A National Assessment. (Working Paper). Washington,
D. C., May, 1975.

McElhiney, Paul T. Motor Common Carrier Freight Rate Study. Denver, Colorado, Federation of Rocky Mountain States, Inc., 1975.

Marquardt, Raymond A.; Morgan, William E.; and Olson, Carl E. Wyoming Agriculture: Past, Present and Future An Economic Sector Study. Laramie, Wyoming, University of Wyoming (For Wyoming Department of Agriculture, State Engineer and Department of Economic Planning and Development), 1971.

Midwest Research Institute. Cost and Effectiveness of Control of Pollution from Selected Nonpoint Sources. Kansas City, Missouri (For National Commission on Water Quality), July, 1975.

Missouri Basin Inter-Agency Committee. The Missouri River Basin Comprehensive Framework Study. Vol. 1: Report. Washington, D. C., 1971.

Missouri River Basin Commission. Platte River Basin, Nebraska Level B Study. Water Quality. (Final Draft) December, 1974.

Mitre Corporation. An Analysis of Constraints on Increased Coal Production. Springfield, Va., National Technical Information Service, U. S. Department of Commerce, 1975.

Mobil Oil Corporation. Mobil Travel Guide. Northwest and Great Plain States. New York, Rand McNally and Co., 1975.

Montana Crop and Livestock Reporting Service. Montana Agricultural Statistics. (Various years)

Montana Department of Health and Environmental Sciences. Water Quality Bureau. Water Quality in Montana (Prepared for Environmental Protection Agency), April, 1975.

Montana Department of Intergovernmental Relations. Economic Development Division. Montana Overlook. 1974.

Montana Department of Intergovernmental Relations. Montana Directory of Manufactures 1973-1974.

Montana Department of Intergovernmental Relations. Montana Preliminary State Public Investment Plan. April, 1975.

Montana Department of Intergovernmental Relations. Regional Economic Conditions In Montana As The 1975 Legislature Convenes. A Report to the Governor of Montana, Hon. Thomas L. Judge. January, 1975.

Montana Department of Planning and Economic Development. Montana Data Book. 1970.

Montana Energy Advisory Council. Coal Development. December, 1974.

Montana State Employment Service. Employment Security Division. Montana Annual Statewide Labor Force Report. (Various dates)

Montana State Employment Service. Employment Security Division. Montana Employment and Work Force Supplements. (Various dates)

Montana State Employment Service. Employment Security Division. Montana's 23 Major Labor Market Areas. (Various dates)

Montana State University Center for Industrial Development. The Growth And Impact of The Big Sky Resort Community. Special Report PE 104. Helena, Montana, 1974.

Moody's Investors Service, Inc. Moody's Bank and Finance Manual. New York, Robert H. Messner, 1975.

Moody's Investors Service, Inc. Moody's Industrial Manual. New York, Robert H. Messner, 1975.

Moody's Investors Service, Inc. Moody's Transportation Manual. New York, Robert H. Messner, 1975..

National Bureau of Economic Research. Table of Water Effluent Discharges by SIC. Washington, D. C., May, 1975.

National Center for Education Statistics. Special Computer Printout for 1973 and 1974.

Nebraska Aeronautics Commission. "State Airport System Plan for the State of Nebraska" (as revised), Lincoln, Nebraska, July, 1975. (Xeroxed)

Nebraska Department of Economic Development. A Directory of Nebraska Manufactures and Their Products. 1974-1975.

Nebraska Department of Economic Development. Nebraska Statistical Handbook 1972.

Nebraska Department of Economic Development. Research Division. Nebraska Economic Reconnaissance Report: 1973 (Preliminary 1974). (Prepared for State Office of Planning and Programming).

Nebraska Department of Environmental Control. Water Pollution Control Division. The State of Nebraska 305(B) Water Quality Report. April, 1975.

Nebraska Department of Labor. Division of Employment. Estimated Total Nonagricultural Wage and Salary Employment. (Various dates)

- Nebraska Department of Labor. Division of Employment. Work and Labor Force Summaries. (Various dates)
- Nebraska Department of Revenue. Annual Report. (Various dates)
- Nebraska Soil And Water Conservation Commission. Report on The Framework Study. State Water Plan Publication No. 101. May, 1971.
- Nebraska State - Federal Division of Agricultural Statistics. Nebraska Agricultural Statistics: Annual Report 1972-73.
- North Dakota Business and Industrial Development Department. North Dakota Industrial Location Facts, by D. R. Torkelson. Bismarck, North Dakota, 1974.
- North Dakota Business and Industrial Development Department. 1974-1975 Directory of North Dakota Manufactures, by D. R. Torkelson. Edited by P. Brown. Bismarck, North Dakota, 1974.
- North Dakota Crop and Livestock Reporting Service. North Dakota Crop and Livestock Statistics: 1973.
- North Dakota Employment Security Bureau. Estimates of North Dakota Labor Force. (Various dates)
- North Dakota Employment Security Bureau. Estimates of North Dakota Work Force. (Various dates)
- North Dakota Employment Security Bureau. North Dakota Nonagricultural Employment. (Various dates)
- North Dakota Geological Survey. Potash in North Dakota (Miscellaneous Series No. 26), by S. B. Anderson and C. G. Carlson. Grand Forks, North Dakota, 1966.
- North Dakota State Department of Health, Water Quality. 305(b) Report on Water Quality State of North Dakota. 1974.
- North Dakota State Planning Division. North Dakota Public Investment Program and Plan - First Year Report - May 1975. Vol. II, A Manual of Reference and Analysis for Comprehensive Planning, by E. E. Gajeski, J. Nagel and P. Poulsen. (Prepared for Executive Branch-State of North Dakota.) 1975.
- North Dakota State Planning Division. North Dakota Public Investment Program and Plan - First Year Report - May 1975. Vol. III, Time - Distance Study North Dakota Outdoor Recreation Sites, by E. E. Gajeski, J. Nagel and P. Poulsen. (Prepared for Executive Branch-State of North Dakota.)

- North Dakota State University, Agricultural Experiment Station. North Dakota Farm Research - Bimonthly Bulletin. Vol. 31, No. 6, July - August, 1974.
- North Dakota State University. Department of Agricultural Economics. Social-Economic-Governmental Impact of Coal Gasification. Presentation to Legislative Briefing on Coal Gasification, Fargo, North Dakota, January 29, 1975. Bismarck, North Dakota, 1975.
- North Dakota State Water Commission. North Dakota Interim State Water Resources Development Plan. SWC Project No. 322. 1968.
- North Dakota State Water Commission. The West River Study. An Analysis of Alternatives for Developing and Managing the West River Area's Water and Related Land Resources. SWC Project 1543. 1975.
- Northern Great Plains Resource Program. Atmospheric Aspects Work Group Report. Discussion Draft. December, 1974.
- Northern Great Plains Resource Program. Draft Report. September, 1974.
- Northern Great Plains Resources Program. Effects of Coal Development in The Northern Great Plains. 1975.
- Northern Great Plains Resource Program. Groundwater Subgroup of Water Work Group. Shallow Groundwater in Selected Areas in The Fort Union Coal Region. U. S. Geological Survey Open File Report 74-48. Helena, Montana, U. S. Department of Interior, 1974.
- Northern Great Plains Resource Program. Mineral Resources Work Group Report. Discussion Draft. February, 1974.
- Northern Great Plains Resource Program. National and Regional Energy Considerations Work Group Report. Discussion Draft. February, 1974.
- Northern Great Plains Resource Program. Report of Work Group (C) Water. Discussion Draft. April, 1974.
- Northern Great Plains Resource Program. Socio-Economic and Cultural Aspects Work Group Report. Discussion Draft. June, 1974.
- Northern Great Plains Resource Program. Surface Resources Work Group-Constraints. Discussion Draft. March, 1974.
- Northern Great Plains Resource Program. Surface Resources Work Group-Impact Analysis. Discussion Draft. March, 1974.
- Northern Great Plains Resource Program. Surface Resources Work Group-Regional Profile. Discussion Draft. February, 1974.

- Office of Economic Opportunity. Federal Outlays in Montana. Springfield, Va., National Technical Information Service - U. S. Department of Commerce, 1968, 1969, 1970, 1971, 1972, 1973 and 1974.
- Office of Economic Opportunity. Federal Outlays in Nebraska. Springfield, Va., National Technical Information Service - U. S. Department of Commerce, 1968, 1969, 1970, 1971, 1972, 1973 and 1974.
- Office of Economic Opportunity. Federal Outlays in North Dakota. Springfield, Va., National Technical Information Service - U. S. Department of Commerce, 1968, 1969, 1970, 1971, 1972, 1973 and 1974.
- Office of Economic Opportunity. Federal Outlays in South Dakota. Springfield, Va., National Technical Information Service - U. S. Department of Commerce, 1968, 1969, 1970, 1971, 1972, 1973 and 1974.
- Office of Economic Opportunity. Federal Outlays in Wyoming. Springfield, Va., National Technical Information Service - U. S. Department of Commerce, 1968, 1969, 1970, 1971, 1972, 1973 and 1974.
- Old West Regional Commission. Coal Developments in the Old West - Existing and Proposed. Rapid City, South Dakota, 1975.
- Ozarks Regional Commission. Economic Development Action Plan. Washington, D. C., U. S. Department of Commerce, 1972.
- Public Land Law Review Commission. One Third of the Nation's Land. Washington, D. C., 1970.
- Rand McNally. Handy Railroad Atlas of the United States. Chicago, New York, San Francisco, 1973.
- Real Estate Research Corporation. The Costs of Sprawl - Detailed Cost Analysis. Washington, D. C., 1974.
- Real Estate Research Corporation. The Costs of Sprawl - Executive Summary. Washington, D. C., 1974.
- Renshaw, Vernon and Turner, Keith. A New Business Activity Index for Nebraska. Business Research Bulletin No. 73, Lincoln, Nebraska, The University of Nebraska, 1972.
- Sixth District Council of Local Governments. The Impact of Coal Development (A Preliminary Assessment). 1975.
- Sixth District Council of Local Governments. Public Investment Plan (first stage). 1975.

- Souris-Red-Rainy River Basins Commission. Souris-Red-Rainy River Basins Comprehensive Study. 1972.
- South Dakota Council on the Future of Agriculture. Policy Plan for the Future of Agriculture. February, 1975.
- South Dakota Department of Economic and Tourism Development. Financial Assistance and Use of Public Funds to Foster Economic and Industrial Development, by J. J. Owens. Pierre, South Dakota, 1975.
- South Dakota Department of Environmental Protection. Comprehensive Water Quality Management for the State of South Dakota. South Dakota State Program Plan F.Y. 1975. May, 1974.
- South Dakota Department of Environmental Protection. A Report on Water Quality for the State of South Dakota. 1975 National Water Quality Inventory Report To Congress - Section 305(b).
- South Dakota Department of Manpower Affairs. Division of Employment Security. Estimates for Agriculture, Self-employed and Domestic. (Various dates)
- South Dakota Department of Manpower Affairs. Division of Employment Security. Statewide Civilian Labor Force Estimates. (Various dates)
- South Dakota Department of Manpower Affairs. Division of Employment Security. Statewide Civilian Work Force Estimates. (Various dates)
- South Dakota Department of Manpower Affairs. Division of Employment Security. Statewide Nonagricultural Wage and Salaried Employment. (Various dates)
- South Dakota Department of Transportation. (Division of Aeronautics). Memorandum from the Chief Aviation Planner. July 18, 1975.
- South Dakota Livestock and Reporting Service. South Dakota Agricultural Statistics: 1973.
- South Dakota State Planning Bureau. Policy Plan for Economic Development. December, 1973.
- South Dakota. State Water Plan. Vol. 1, "Introduction, Goals and Objectives of The State Water Plan". January, 1975.
- South Dakota. State Water Plan. Vol. VI, "Policies And Recommendations". January, 1975.
- South Eastern Council of Governments and the District II Economic Development Subcommittee. Economic Development: A Public Investment Plan for the SECOG Area, by S. A. Kaliszewski. South Dakota, May, 1975.

- Stanford Research Institute. A Program to Expand Exports Foreign Investment and Foreign Tourism in the Old West Region. (Draft). Menlo Park, Calif., June, 1975.
- Strength Through Agricultural Resources (STAR) Committee. (Series of Agriculture reports). Lincoln, Nebraska, Institute of Agriculture and Natural Resources, 1974.
- Thomas E. Carroll Associates. Economic and Social Impacts of Coal Development in the 1970's for Mercer County, North Dakota. Washington, D. C. (For Old West Regional Commission), 1974.
- Thomas E. Carroll Associates. Environmental Impacts of Alternative Conversion Processes for Western Coal Development. Washington, D. C. (For Old West Regional Commission), 1974.
- Thrower, N. J. W., ed. Man's Domain, a Thematic Atlas of the World. New York, McGraw Hill, 1975.
- Tindall, Barry S., ed. State Park Statistics 1970. Washington, D. C., National Conference on State Parks, August, 1971.
- U. S. Army Corps of Engineers. Main Stem Reservoir Regulation Studies. Series 1-74. Omaha, Nebraska: Office of the Division Engineer, Missouri River Division, April, 1974.
- U. S. Congress. The Federal Clean Air Amendments of 1970. Public Law 91-604, 91st Congress, 1st Session, December 31, 1970.
- U. S. Congress. The Federal Water Pollution Control Act Amendments of 1972. Public Law 92-500, 92nd Congress, 2nd Session, October 18, 1972.
- U. S. Department of Agriculture. Agricultural Statistics. 1974.
- U. S. Department of Agriculture. Economic Research Service. The Balance Sheet of the Farming Sector 1974.
- U. S. Department of Agriculture. Economic Research Service. Balance Sheet of the Farming Sector by Value of Sales Class 1960-1973. Information Bulletin No. 376. April, 1975.
- U. S. Department of Agriculture. Economic Research Service. Farm Income State Estimates 1949-73. September, 1974.
- U. S. Department of Agriculture. Economic Research Service. Farm Real Estate Historical Series Data: 1850-1970. 1973.
- U. S. Department of Agriculture. Economic Research Service. Farm Real Estate Market Developments. July, 1974.

- U. S. Department of Agriculture. Economic Research Service. Major Uses of Land in the U. S. - Summary for 1969.
- U. S. Department of Agriculture. Forest Service. The Demand and Price Situation for Forest Products: 1973-74 by D. Hair and R. Phelps. Miscellaneous Publication No. 1292. Washington, D. C., 1974.
- U. S. Department of Agriculture. Forest Service. The Outlook for Timber in the United States. (Forest Resource Report No. 20 - July, 1974).
- U. S. Department of Agriculture. Forest Service. The Rocky Mountain Timber Situation, 1970, by A. Green and T. Setzer. U. S. D. A. Forest Service Resource Bulletin INT-10. Ogden, Utah, Inter-Mountain Forest and Range Experiment Station, 1974.
- U. S. Department of Commerce. Bureau of the Census. Area Statistics-1972 Census of Retail Trade.
- U. S. Department of Commerce. Bureau of the Census. Area Statistics-1972 Census of Selected Service Industries.
- U. S. Department of Commerce. Bureau of the Census. County Business Patterns 1972.
- U. S. Department of Commerce. Bureau of the Census. County and City Data Book. 1970, 1972.
- U. S. Department of Commerce. Bureau of the Census. Current Population Reports. Series P-26, Federal-State Cooperative Program for Population Estimates. 1974.
- U. S. Department of Commerce. Bureau of the Census. Current Population Reports. Series P-26, Federal-State Cooperative Program for Population Estimates, nos. 100, 101, 102, 104 and 109. 1975.
- U. S. Department of Commerce. Bureau of the Census. Current Population Reports. Series P-25, Population Estimates and Projections, nos. 520, 533, 605. 1974, 1975.
- U. S. Department of Commerce. Bureau of the Census. Current Population Reports. Series D, Population Projections. 1972.
- U. S. Department of Commerce. Bureau of the Census. Governmental Finances. Series GF 73 for Fiscal Years 1964-65, 1965-66, 1966-67, 1967-68, 1968-69, 1969-70, 1970-71, 1971-72 and 1972-73.
- U. S. Department of Commerce. Bureau of the Census. Statistical Abstract of the United States. 1972 and 1974.

- U. S. Department of Commerce. Bureau of the Census. United States Census of Agriculture: 1964. Part 1, U. S. Summary; Part 38, Montana; Part 20, Nebraska; Part 18, North Dakota; Part 19, South Dakota; and Part 40, Wyoming.
- U. S. Department of Commerce. Bureau of the Census. United States Census of Business: 1967. Vol. II, Retail Trade-Area Statistics.
- U. S. Department of Commerce. Bureau of the Census. United States Census of Business: 1967. Vol. V, Selected Services-Area Statistics.
- U. S. Department of Commerce. Bureau of the Census. United States Census of Housing: 1970. Vol. I, Housing Characteristics for States, Cities and Counties, Part 1, U. S. Summary; Part 28, Montana; Part 29, Nebraska; Part 36, North Dakota; Part 43, South Dakota; Part 52, Wyoming.
- U. S. Department of Commerce. Bureau of the Census. United States Census of Housing: 1960. Vol. I, States and Small Areas, Parts 1, 5, 6, 7 and 8.
- U. S. Department of Commerce. Bureau of the Census. United States Census of Population: 1950. Vol. 1, Characteristics of the Population, Part 1, U. S. Summary; Part 26, Montana; Part 27, Nebraska; Part 34, North Dakota; Part 44, South Dakota; and Part 50, Wyoming.
- U. S. Department of Commerce. Bureau of the Census. United States Census of Population: 1960. Vol. 1, Characteristics of the Population, Part 1, U. S. Summary; Part 28, Montana; Part 29, Nebraska; Part 36, North Dakota; Part 43, South Dakota; and Part 52, Wyoming.
- U. S. Department of Commerce. Bureau of the Census. United States Census of the Population: 1970. Subject Reports. Final Report PC (2)-1F: American Indians.
- U. S. Department of Commerce. Bureau of the Census. United States Census of the Population: 1970. Subject Reports. Final Report PC (2)-23: Mobility for States and the Nation.
- U. S. Department of Commerce. Bureau of Economic Analysis. Area Economic Projections 1990. 1974.
- U. S. Department of Commerce. Bureau of Economic Analysis. OBERS Projections: 1972.
- U. S. Department of Commerce. Bureau of Economic Analysis. Regional Economics Division. Special Printout, April 27, 1975.
- U. S. Department of Commerce. Bureau of Economic Analysis. Regional Economics Information System. Employment by Type and Broad Industrial Sources. Special Printout.

- U. S. Department of Commerce. Bureau of Economic Analysis. Survey of Current Business. Volume 54, 55, No. 4, April, 1974.
- U. S. Department of Commerce. Bureau of Economic Analysis. Survey of Current Business. Volume 54, 55, No. 4, April, 1975.
- U. S. Department of Commerce. Bureau of Economic Analysis. Upper Missouri River Region: A Socio-Economic Profile. February, 1972.
- U. S. Department of Health, Education and Welfare. Health Resources Administration, National Center for Health Resources. Health Resources Statistics; 1969, 1970, 1971 and 1972. (Annual Publication).
- U. S. Department of Health, Education and Welfare. National Center for Education Statistics. "Directory of Postsecondary Schools with Occupational Programs, 1974, Public and Private", Washington, D. C., 1975. (Computer Printout).
- U. S. Department of Health, Education and Welfare. National Center for Educational Statistics. Higher Education - Educational Directory 1970-71.
- U. S. Department of Health, Education and Welfare. National Center for Educational Statistics. Higher Education - Educational Directory 1974-75.
- U. S. Department of Health, Education and Welfare. Vital Statistics of the United States: 1960. Vol. II, Mortality.
- U. S. Department of Health, Education and Welfare. Vital Statistics of the United States: 1970. Vol. II, Mortality.
- U. S. Department of Health, Education and Welfare. Vital Statistics of the United States: 1960. Vol. 1, Natality.
- U. S. Department of Health, Education and Welfare. Vital Statistics of the United States: 1970. Vol. 1, Natality.
- U. S. Department of Interior. Bureau of Indian Affairs. Aberdeen Area Statistical Data. July, 1973.
- U. S. Department of Interior. Bureau of Indian Affairs. Billings Area Statistical Data. November, 1973.
- U. S. Department of Interior. Bureau of Land Management. Public Land Statistics. 1973.
- U. S. Department of Interior. Bureau of Mines. Commodity Data Summaries. 1975.

- U. S. Department of Interior. Bureau of Mines. Iron Resources of South Dakota, by C. M. Harrer. Information Circular 8278. Washington, D. C., 1966.
- U. S. Department of Interior. Bureau of Mines. Mineral Industry Surveys. 1974.
- U. S. Department of Interior. Bureau of Mines. Mineral Resources of the Black Hills Area, South Dakota and Wyoming, by J. P. Gries. Information Circular 8660. Washington, D. C., 1974.
- U. S. Department of Interior. Bureau of Mines. Minerals Yearbook 1952 and 1962. Vol. III, Area Reports.
- U. S. Department of Interior. Bureau of Mines. Minerals Yearbook 1972. Vol. II, Area Reports: Domestic.
- U. S. Department of Interior. Bureau of Mines. Strippable Coal Reserves of Wyoming: Location, Tonnage and Characteristics of Coal and Overburden, by M. F. Ayler, C. C. Knox, B. C. Pollard and J. B. Smith. Information Circular 8538. Washington, D. C., 1972.
- U. S. Department of Interior. Bureau of Mines. Strippable Lignite Reserves of North Dakota: Location, Tonnage and Characteristics of Lignite and Overburden, by C. C. Knox, B. C. Pollard and J. B. Smith. Information Circular 8537. Washington, D. C., 1972.
- U. S. Department of Interior. Bureau of Reclamation. Definite Plan Report on Initial Stage Oahe Unit. 1971.
- U. S. Department of Interior. Bureau of Reclamation. Final Environmental Statement. Initial State Garrison Diversion Unit. January, 1974.
- U. S. Department of Interior. Bureau of Reclamation. Final Environmental Statement. Initial State Oahe Unit. December, 1973.
- U. S. Department of Interior. Bureau of Reclamation. Statistical Compilation of Diversion Dams On Bureau of Reclamation Projects. June, 1974.
- U. S. Department of Interior. Bureau of Reclamation. Statistical Compilation of Storage Dams, Dikes and Reservoirs On Bureau of Reclamation Projects. 1974.
- U. S. Department of Interior. Federal Energy Administration. Project Independence. Final Task Force Report: Coal. November, 1974.

- U. S. Department of Interior. Federal Energy Administration. Project Independence. November, 1974.
- U. S. Department of Interior. Geological Survey. Estimated Use of Water in the United States, 1960, by J. C. Kammerer and K. A. MacKichan. Circular 456. Washington, D. C., 1967.
- U. S. Department of Interior. Geological Survey. Estimated Use of Water in the United States, 1965, by C. R. Murray. Circular 556. Washington, D. C., 1969.
- U. S. Department of Interior. Geological Survey. Estimated Use of Water in the United States in 1970, by C. R. Murray and E. B. Reeves. Circular 676. Washington, D. C., 1975.
- U. S. Department of Interior. Geological Survey and Montana Bureau of Mines and Geology. Mineral and Water Resources of Montana. Senate Document No. 98, 90th U. S. Congress, 2nd Session, 1968.
- U. S. Department of Interior. Geological Survey. Anomalous Concentrations of Several Metals in Iron Formation of the Blue Lead Mountain Area, Pennington County, South Dakota, by R. V. King, J. J. Norton and W. H. Raymond. Circular 707. Washington, D. C., 1974.
- U. S. Department of Interior. Geological Survey and Bureau of Reclamation and Bureau of Mines and the North Dakota Geological Survey. Mineral and Water Resources of North Dakota. Senate Committee on Interior and Insular Affairs Print, U. S. 93rd Congress, 1st Session, 1973.
- U. S. Department of Interior. Geological Survey. Gold in the Black Hills, South Dakota, and How New Deposits Might Be Found, by J. J. Norton. Circular 699. Washington, D. C., 1974.
- U. S. Department of Interior. Geological Survey and Bureau of Reclamation and South Dakota State Geological Survey and the South Dakota School of Mines and Technology. Mineral and Water Resources of South Dakota. Senate Committee on Interior and Insular Affairs Print, U. S. 88th Congress, 2nd Session, 1964.
- U. S. Department of Interior. Geological Survey. Mineral and Water Resources of Wyoming. Senate Document No. 76, 86th Congress, 2nd Session, 1960.
- U. S. Department of the Interior. Geological Survey. National Atlas. 1975.
- U. S. Department of Interior. Geological Survey. Water Quality Records in Nebraska, 1964.

- U. S. Department of Interior. Geological Survey. Water Resources Data for Montana, 1965, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Montana, 1972, Part 1, Surface Water Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Nebraska, 1972, Part 1, Surface Water Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for North Dakota, 1972, Part 1, Surface Water Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for South Dakota, 1972, Part 1, Surface Water Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Wyoming, 1972, Part 1, Surface Water Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Montana, 1973, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Nebraska, 1965, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Nebraska, 1972, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for North Dakota, 1966, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for North Dakota, 1972 and 1973, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for North Dakota, 1973, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for South Dakota, 1967, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for South Dakota, 1970, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for South Dakota, 1973, Part 2, Water Quality Records.
- U. S. Department of Interior. Geological Survey. Water Resources Data for Wyoming, 1973, Part 2, Water Quality Records.

- U. S. Department of Interior. National Park Service. Public Use of the National Parks; A Statistical Report 1960-1970.
- U. S. Department of Interior. National Park Service. Public Use of the National Parks, Washington, D. C. (Various years)
- U. S. Department of Interior. Water for Energy Management Team. Report on Water for Energy in the Northern Great Plains Area with Emphasis on the Yellowstone River Basin. January, 1975.
- U. S. Department of Labor. Bureau of Labor Statistics. Employment and Earnings. Volume 21, No. 12, June, 1975.
- U. S. Department of Labor. Manpower Administration. Manpower Report of The President: 1973.
- U. S. Department of Labor. Manpower Administration. Manpower Report of The President: 1975.
- U. S. Department of Transportation. Federal Aviation Administration. Advisory Circular. Airport Pavement Design and Evaluation. May, 1974.
- U. S. Department of Transportation. Federal Aviation Administration. F.A.A. Statistical Handbook of Aviation. Calendar Year 1973.
- U. S. Department of Transportation. Federal Aviation Administration. Formulation of 1972 National Airport System Plan (NASP).
- U. S. Department of Transportation. Federal Aviation Administration. "National Airport System Plan - Master File Verification Report", Washington, D. C., 1975. (Computer Printout)
- U. S. Department of Transportation. Office of Highway Statistics. "Truck Weight Study" - Table W1. Washington, D. C., 1973. (Computer Printout)
- U. S. Department of Transportation. Office of Program Management. 1974 Interstate Cost Estimates.
- U. S. Environmental Protection Agency. "Aerometric and Emissions Reporting System", Research Triangle Park, N. C., 1975. (Inventory)
- U. S. Environmental Protection Agency. Clean Air. It's Up To You, Too. March, 1973.
- U. S. Environmental Protection Agency. Cost of Clean Air Report to Congress. March, 1973.

- U. S. Environmental Protection Agency. Economic Analysis of Effluent Guidelines, Steam Effective Power Plants. Washington, D. C., 1975.
- U. S. Environmental Protection Agency. Monitoring and Data Analysis Division. Monitoring and Air Quality Trends Report, 1973. (EPA 450/1-74-007).
- U. S. Environmental Protection Agency. Monitoring and Data Analysis Division. 1972 National Emissions Report. (EPA 450/2-74-012).
- U. S. Environmental Protection Agency. "Municipal Waste Inventory", Washington, D. C., 1975.
- U. S. Environmental Protection Agency. Office of Air Programs. "National Emissions Data System" (NEDS), County Reports, Washington, D. C., 1975. (Computer Printout).
- U. S. Environmental Protection Agency. Office of Planning and Evaluation. The Economics of Clean Water - 1972.
- U. S. Environmental Protection Agency. Office of Planning and Evaluation. The Economics of Clean Water - 1973.
- U. S. Environmental Protection Agency. Office of Research and Development. Economics of Clean Environment. 1975.
- U. S. Environmental Protection Agency. Office of Water Planning and Standards. "Draft Section 304(a) Guidelines", Washington, D. C., 1975.
- U. S. Environmental Protection Agency. Office of Water Planning and Standards. National Water Quality Inventory. 1974 Report to the Congress. (Vol. I and II).
- U. S. Environmental Protection Agency. Office of Water Program Operations. "General Point Source File", Washington, D. C., 1975.
- U. S. Environmental Protection Agency. Office of Water Program Operations. "1974 NEDS Survey", Washington, D. C., 1974. (Computer Tape).
- U. S. Environmental Protection Agency. "Storet Computerized Data Base", Washington, D. C., 1975.
- U. S. Environmental Protection Agency. "Strategic Environmental Assessment System" (SEAS), Generation of Residuals Module (RESGEN), Washington, D. C., 1975.

- U. S. Environmental Protection Agency. "Strategic Environmental Assessment System" (SEAS), Input-Output Model (INFORUM), Washington, D. C., 1975.
- U. S. Environmental Protection Agency. "Strategic Environmental Assessment System" (SEAS), Summary of Residuals by State: Montana, Wyoming, North Dakota, South Dakota and Nebraska, Washington, D. C., 1975.
- U. S. Travel Data Center. 1972 National Travel Expenditure Study: Summary Report. Washington, D. C., December, 1973.
- U. S. Water Resources Council. 1972 OBERS Projections. Series "E" Population. Washington, D. C., 1974.
- U. S. Water Resources Council. Project Independence. Final Task Force Report: Water Requirements, Availabilities, Constraints, and Recommended Federal Actions. Washington, D. C., 1974.
- U. S. Water Resources Council. Water for Energy Self-Sufficiency. Washington, D. C., 1974.
- University of Nebraska Bureau of Business Research. Nebraska Economic Projections 1975-2000. Lincoln, Nebraska, 1974.
- University of Nebraska Bureau of Business Research and Center for Applied Urban Research. Nebraska Population Projections State, County, Region and Town 1975-2020. Lincoln, Nebraska, State Office of Planning and Programming, 1973.
- University of Nebraska Bureau of Business Research. 1975 Nebraska Population and Economy. Lincoln, Nebraska, 1975.
- University of Oklahoma. Energy Alternatives: A Comparative Analysis. Washington, D. C., U. S. Council on Environmental Quality, May, 1975.
- University of Wyoming Water Resources Research Institute. Coal Energy Development in the Northern Great Plains. Laramie, Wyoming, 1973.
- Urban Management Consultants. Profile of the Montana Native American. San Francisco, Calif., 1974.
- Weiss, Robert. Aspects of Coal Development in the Northern Great Plains. Pierre, South Dakota, State Planning Bureau, 1974.
- Wyoming Crop and Livestock Reporting Service. Wyoming Agricultural Statistics. 1973.

Wyoming Department of Economic Planning and Development. Engineering Report on the Development of Presently Unused Water Supplies of the Green River Basin in Wyoming. Part 1 - Report. October, 1972.

Wyoming Department of Economic Planning and Development. Wyoming Directory of Manufacturing and Mining 1974.

Wyoming Department of Economic Planning and Development. Coal Development Alternatives - An Assessment of Water Use and Economic Implications, by D. D. Freudenthal, P. Ricciardelli and M. N. York. Cheyenne, Wyoming: Wyoming Department of Economic Planning and Development, December, 1974.

Wyoming Department of Economic Planning and Development. Wyoming Timber Industries Directory. October, 1974.

Wyoming Employment Security Commission. Covered Employment Estimates. (Various years).

Wyoming Employment Security Commission. Labor Force Summary, 1970-1974.

Wyoming Department of Environmental Quality. Water Quality Division. State of Wyoming Water Quality Inventory 1975.

Wyoming Water Planning Program. State Department of Agriculture Cooperating. Irrigable Soils of Wyoming. 1974.

